TeTex.

EUROPEAN TECHNICAL TEXTILES MAGAZINE

AUTUMN 2018

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SPACE BOOT
Reebok supports astronauts

FOREVER YOUNG
Fibres for natural wellness

ALLERGENS - FREE TEXTILES
Natural technology from Devon

CLOTHES HANGERS VS. NATURE
Potential damage from plastic hangers

TOP 6 GADGETS

EDITORIAL

Dear Readers,

Can you feel autumn already? We cannot wait to experience the beautiful autumn views once again. The result of this anticipation is the latest issue of Tetex Magazine! We are sure autumn 2018 is going to be far from boring.

The season inspired us to find out TOP 6 innovative textile gadgets and solutions. Our smart textile addicts may find them fascinating!

Moreover, as the main media partner of Fast Textile in Warsaw, we cordially invite you all to attend and meet us there. This trade fair is going to be very intriguing, both for exhibitors and guests.

The autumn issue of Tetex Magazine includes a lot of articles from industry leading companies - 3M, Leister, Tencel and many, many more - to help you survive the upcoming months, no matter the weather. We hope you will all enjoy our latest issue.

See you soon!

Dorota Sakowska-Hunt

Publisher:
Tetex Limited
Europe's Leading Technical Textile Website
United Kingdom
Suite 8 Newton Hall,
Town Street Newton,
Cambridge CB22 7ZE
+44 788 497 7809

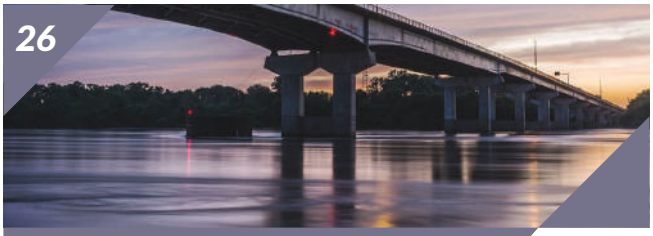
Poland
Klobucka 7, 02-699 Warsaw
+48 22 101 39 98

Editor in Chief:
Dorota Sakowska-Hunt

Editorial Team:
Łukasz Cichoszewski
Mark Hunt
Karolina Kostuś
Agata Sibilska

Graphic Design
Mateusz Chałan

Read Online
www.tetex.com
info@tetex.com



TOP 6 FOR WINTER

1 LUMZAG SMART BAGS

Lumzag Smart Bags are the most innovative and smart carry system to date, designed with high end materials and 7 smart features.Charge your phone wirelessly on the go, while also charging your tablet and laptop with our built-in 10,000 mAh power bank. You can also charge your AirPods using the special compartment in the bag.

indiegogo.com

ZERO GRAVITY UPRIGHT POSTURE 2

Zero Gravity Upright Posture (ZGUP) Cushion is undoubtedly the most ergonomic and comfortable cushion you will find. It provides a weightless sitting experience so you can get up feeling revitalized.

Releases sitting stress & slumping stress on your spine and hips, and promotes a healthier lifestyle, and Reduce neck, shoulder, and back pain to power through your day.

indiegogo.com

3 TRONO

While some people think sitting on hard rocks or straining your neck on a hammock lounger is ‘part of the charm’, we believe your relaxation time should be, well…RELAXING! Wouldn’t you agree? It’s achievable with the TRONO Inflatable Chair. How does it work? Inflates in seconds – Just whip it around in a circle, roll, connect, voila!

indiegogo.com

THIS ISSUE'S TOP 6 INCLUDES THE MOST INNOVATIVE, GADGETS, THAT MAY MAKE OUR LIFE EASIER OR MORE COMFORTABLE. THESE MAY ALSO BE INTERESTING FOR SMART TEXTILE GEEKS. ENJOY!

TWILIGHT THERMAL MATTRESS TOPPER 4

The Twilight Thermal Mattress Topper is for anyone who loves camping and being outdoors but hates being cold and uncomfortable while sleeping in a tent. It can be hard to enjoy outdoor adventures when you don't get a good night's sleep. The idea is simple. Use the heat-reflective properties of emergency mylar blankets in a mattress topper, to prevent heat loss while sleeping.

indiegogo.com

5 THE FOOD GUARD

The Food Guard Lid is a heatproof, stretchable, stackable, washable, reusable, environmentally friendly, time and money saving food lid that stretches and moulds to ANY sized food container, plate, bowl, dish, pan or storage medium. The Food Guard Lid eliminates the need to replace lost lids, waste time finding the right lid for the right container or worry about finding a microwave or oven safe lid when cooking.

indiegogo.com

GO CHAIR 6

Unparalleled design for instant comfort. Compact and portable seating for adventurers, nature lovers and more. Master the art of relaxing anywhe-re. Easiest set up. Comfort and convenience when out and about. From concerts to camping, barbecues on the beach, now you can always have a sturdy chair when you need it. Lightweight and packs ultra small. Bring 6 in a bag or carry one easily on your own. No excuses to forget the chair!

indiegogo.com

Staying "Forever Young" with TENCEL™ Lyocell and TENCEL™ Modal fibers

www.tencel.com

The Inspiration

Today's lifestyle of choice is increasingly focused on wellness. We are beginning to recognise that exercise, which is crucial to mental and physical wellbeing, should be a key part of any healthy lifestyle.

As a result, there's a growing demand for textiles that not only enhance our experience as we work out, but also encourage us to move our bodies in the first place. With this in mind, Forever Young has been designed as a collection of intimates, activewear and outerwear that subconsciously inspires us to be active. When our bodies are active, they produce vital endorphins, making us feel youthful and invigorated.

High Performance Textiles

Textile selection is key to achieving this objective. Today's textiles should not only look good; they should also deliver a wealth of benefits to the wearer, such as:

- Sensation: stimulating the senses
- Physical comfort: reacting to muscles, skin and temperature
- Support: correcting and shaping the body
- Protection: supporting and healing qualities

In providing these benefits, we can deliver a powerful dose of positive energy to the wearer that helps them to feel young and healthy, in both body and mind. Wearers will not only feel active but mindful; a state of serenity and awareness at the same time.

Design Partners

Studio Eva x Carola have been instrumental in the creation of this collection. They take a reverse approach to the process of creating; designs are produced as a result of textile choice, machine selection and data, rather than vice versa. The process involves several elements, including intensive research into the needs of the wearer, the capabilities of the material itself, and graphic design.

Seamless Technology

Seams are often associated with irritation to the skin and removing them can deliver an exceptional level of comfort. To produce this collection, we have therefore used the latest seamless and circular knitting technology from Santoni Shanghai and manufacturing skills from Kingwhale, Taiwan. These different knit technologies have been used to transform stitches into functional textures. Engineering is done on a stitch-by-stitch level and textures are then body-mapped onto the garment. Throughout the garment, these textures fulfil different performance needs, working in harmony with their aesthetic and design.

One of the most important elements in the creation process is the testing of different yarns, machine settings and knits. Every structure that is developed is carefully analysed in terms of its touch, performance and appearance. Once the right metrics have been determined, the structures are assigned to different functional zones in the garment to produce the final design. These functional zones might deliver benefits such as ventilation, compression, power, support, shaping, protection, and insulation.

Modular Designs

In today's textile industry, target groups are constantly shifting, leading to diverse consumer profiles. There is a new breed of cross consumers who are looking for engagement and a variety of experiences. This has given rise to the need for layered outfits that can meet all of the wearer's daily requirements.

With this in mind, these products have been developed from the yarn up. Garments have been created using one concept and one fiber, whilst also delivering multiple end uses. This apparel appeals to both old and young demographics. It not only enhances the body but also combines elements from both fashion and activewear. There is a smooth interaction between inner layers (intimates) and outer layers (outerwear). Designs deliver both functionality and style - they combine the benefits of body enhancing textiles with an elegant aesthetic that is stylish enough to wear out. The resulting modular outfits provide versatility, performance, and most importantly value.

The power of nature

Finding the perfect synergy between product, knit technology and yarn is essential. Using natural functional fibers is an intelligent solution that can help to deliver important benefits to the wearer. The Forever Young collection therefore features TENCEL™ braned Lyocell and TENCEL™ branded Modal fibers (with Eco Soft and Micro technologies) blended with Merino, Umorfil, Coolmax or Celliant. Those familiar with Lenzing yarns will know that TENCEL™ fibers have some special attributes that are ideal for this type of apparel. Firstly, they're incredibly soft and smooth, giving a high level of comfort. Secondly, they are soothing and cooling on the skin, properties that are extremely beneficial when it comes to activewear. Finally, they are breathable, absorbing and releasing moisture and thereby assisting with thermal regulation. The result is a natural fiber that, as TENCEL™ slogan aptly puts it, "feels so right".

These fibers not only feel right because of their material; they also feel right because they are sustainably produced. Both TENCEL™ Lyocell and TENCEL™ Modal fibers are made with ethically sourced wood - either natural forests or sustainably managed plantations. They have a low water footprint and are manufactured with a responsible use of chemicals. This means we can not only deliver wellbeing for ourselves, we can also deliver wellbeing for the planet.

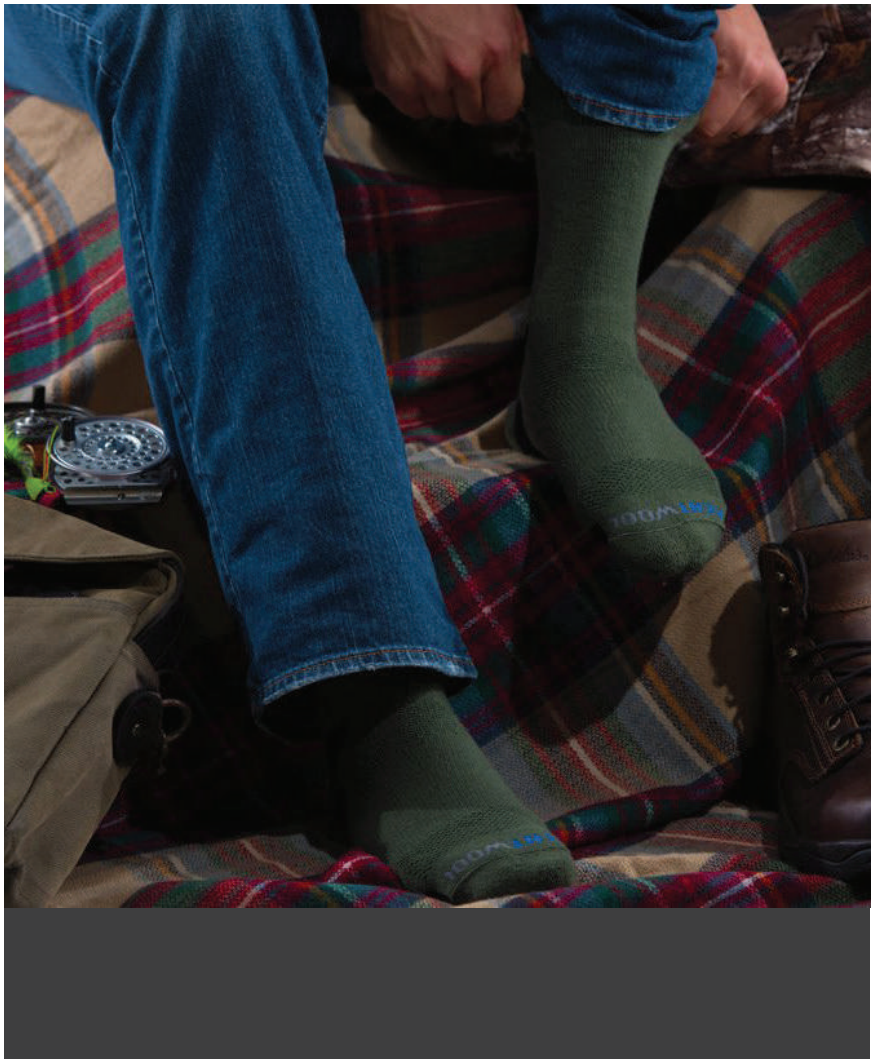
www.kentwool.com

Kentwool Introduces "Sensationwool" Sock: First And Only Sock With Treated Fiber To Ease Foot Pain

Building on a long-standing commitment to foot comfort, Kentwool, maker of the "World's Best Sock," announced today the introduction of a therapeutic sock for foot pain relief. The new SensationWool sock features Kentwool's signature, superfine Merino wool in combination with Nufabrx® nylon, which is infused with capsaicin and a synthetic cooling agent. This combination of warming and cooling ingredients, similar to those found in over-the-counter pain treatments, provides temporary relief of foot-related aches and pains of muscles and joints associated with strains, sprains, arthritis, bruises, cramps, stiffness and soreness.

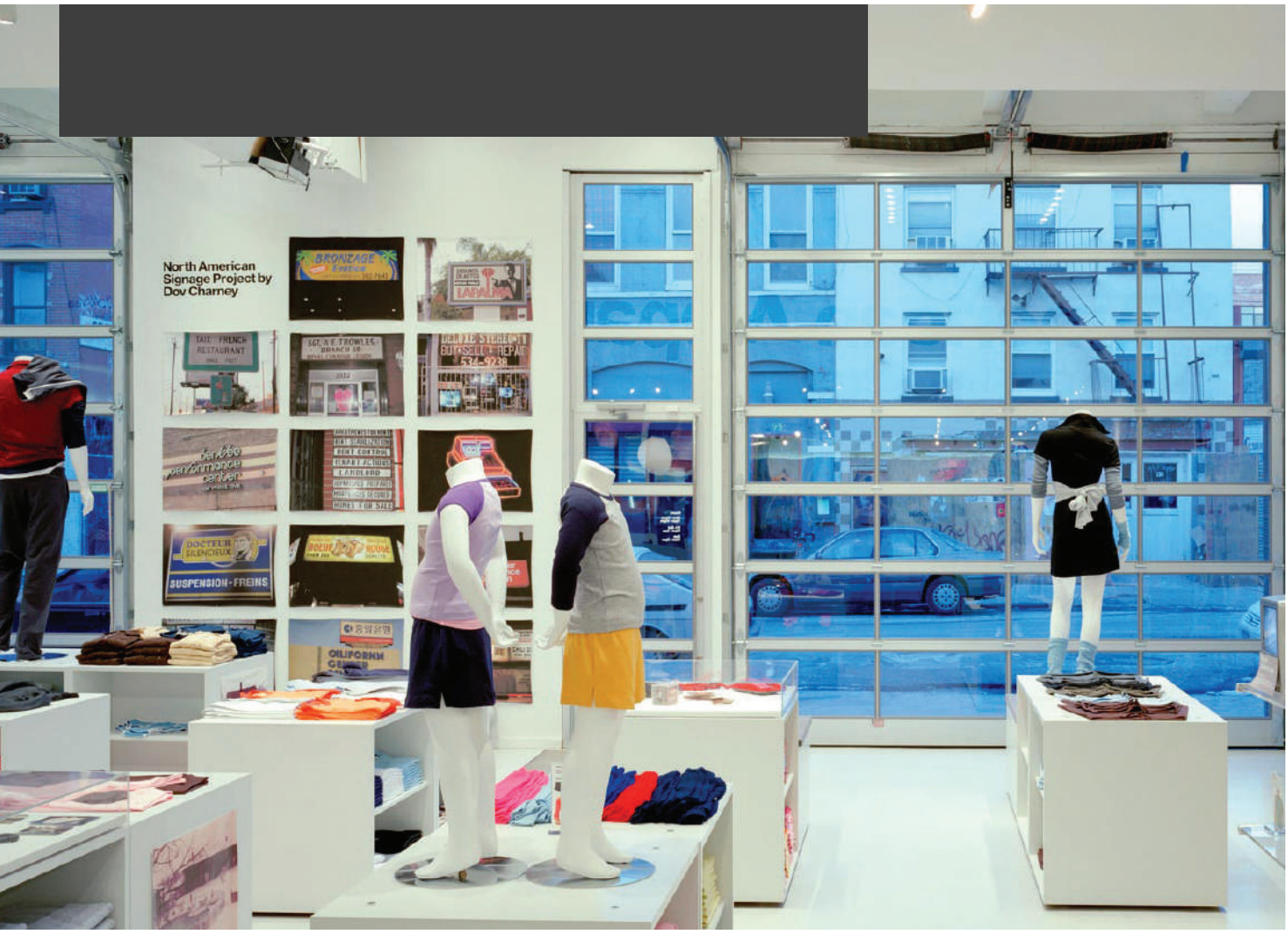
"Kentwool socks were borne out of a desire to keep customers comfortable, helping them to pursue the activities that they love with less pain and more enjoyment," said Lauren Hubbard, president of Kentwool Performance Apparel. "The SensationWool is an extension of that commitment to comfort, taking the proven performance properties of wool and coupling them with the power of Nufabrx technology. The socks' warming and cooling sensations deliver pain relief without the mess and inconvenience often associated with creams and pills. We're thrilled to offer our customers an easy and effective way to ease their pain."

Kentwool's SensationWool socks are offered in an ankle-height style and natural color. They are constructed from a proprietary blend of superfine Merino Wool and other natural and high-tech performance fibers, including Nufabrx nylon, a fiber infused with capsaicin and a synthetic cooling agent. The SensationWool's pain management features are lab-tested to last through 30 wash cycles, and the incorporated ingredients are cosmetic-grade and safe for regular wear.



The new Kentwool SensationWool is available now exclusively at kentwool.com and features a retail price of $24.99. The sock is available in women's medium and large, and men's medium, large and extra large sizes.

"We're excited Kentwool chose Nufabrx® yarn for use in its most innovative socks to date," said TexDel CEO, Jordan Schindler. "We believe clothing will start to care for your body in entirely new ways. We see the day when well-being is simply part of your everyday outfit, and the SensationWool sock is at the forefront of this movement."



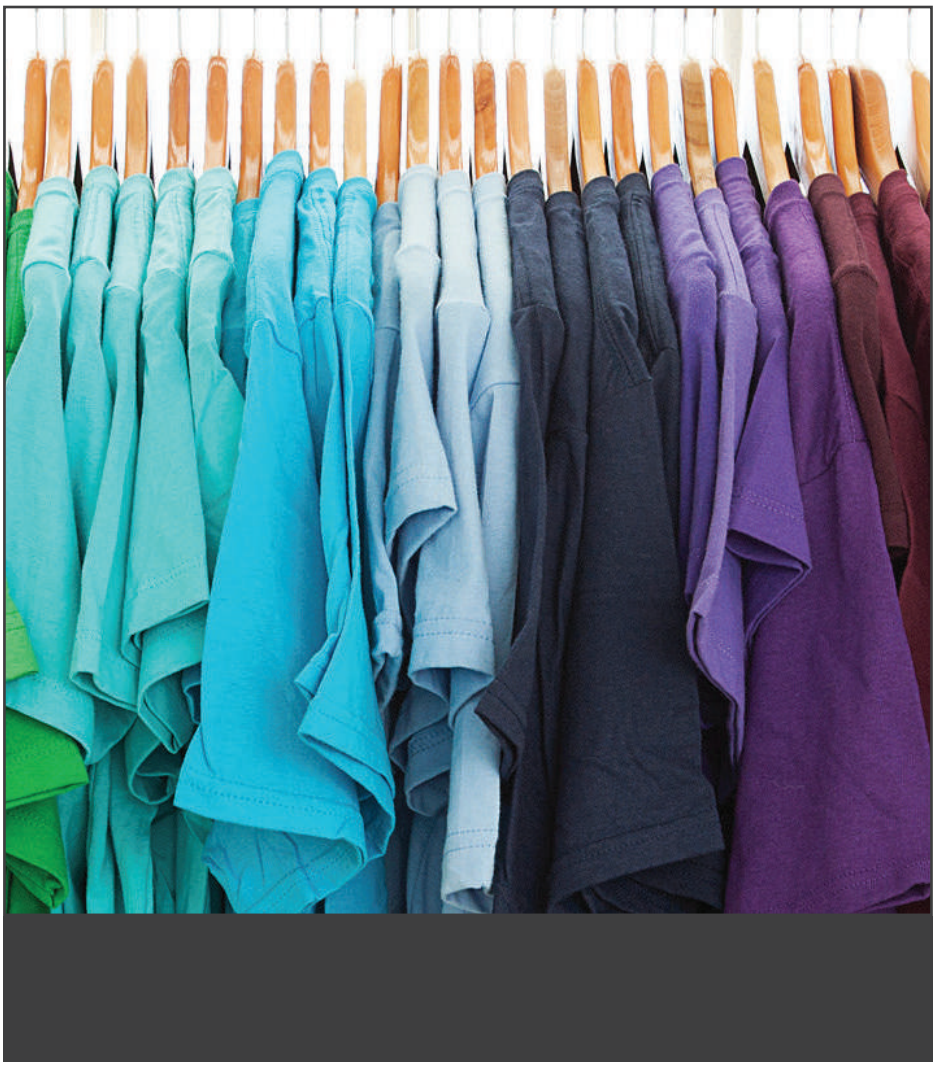
ThreadSol Partners With PI Apparel to Front Tech Innovation for Apparel Industry

ThreadSol is proud to announce partnership with Product Innovation as a sponsor for PI Apparel Hong Kong.

PI Apparel brings together the fashion, apparel and footwear industry to discuss the challenges and technologies disrupting the industry. PI Apparel Hong Kong has a focused stream for each of pre-production, production and the wider supply chain to mirror the complexity of the Asian market.

ThreadSol is a technology pioneer for the global apparel industry using Artificial Intelligence and Big Data. Headquartered in Singapore, ThreadSol provides software solutions for apparel manufacturers and brands. These AI and Big Data driven solutions are aimed at boosting top-line and bottom-line for the apparel industry. Clients of ThreadSol technology include MAS Holdings, Brandix, Tristate, Luen Thai, Beximco and Hirdaramani Group to name a few.

Elated by the partnership, Founder CEO Manasij Ganguli, said, "The driving



www.prnewswire.co.uk

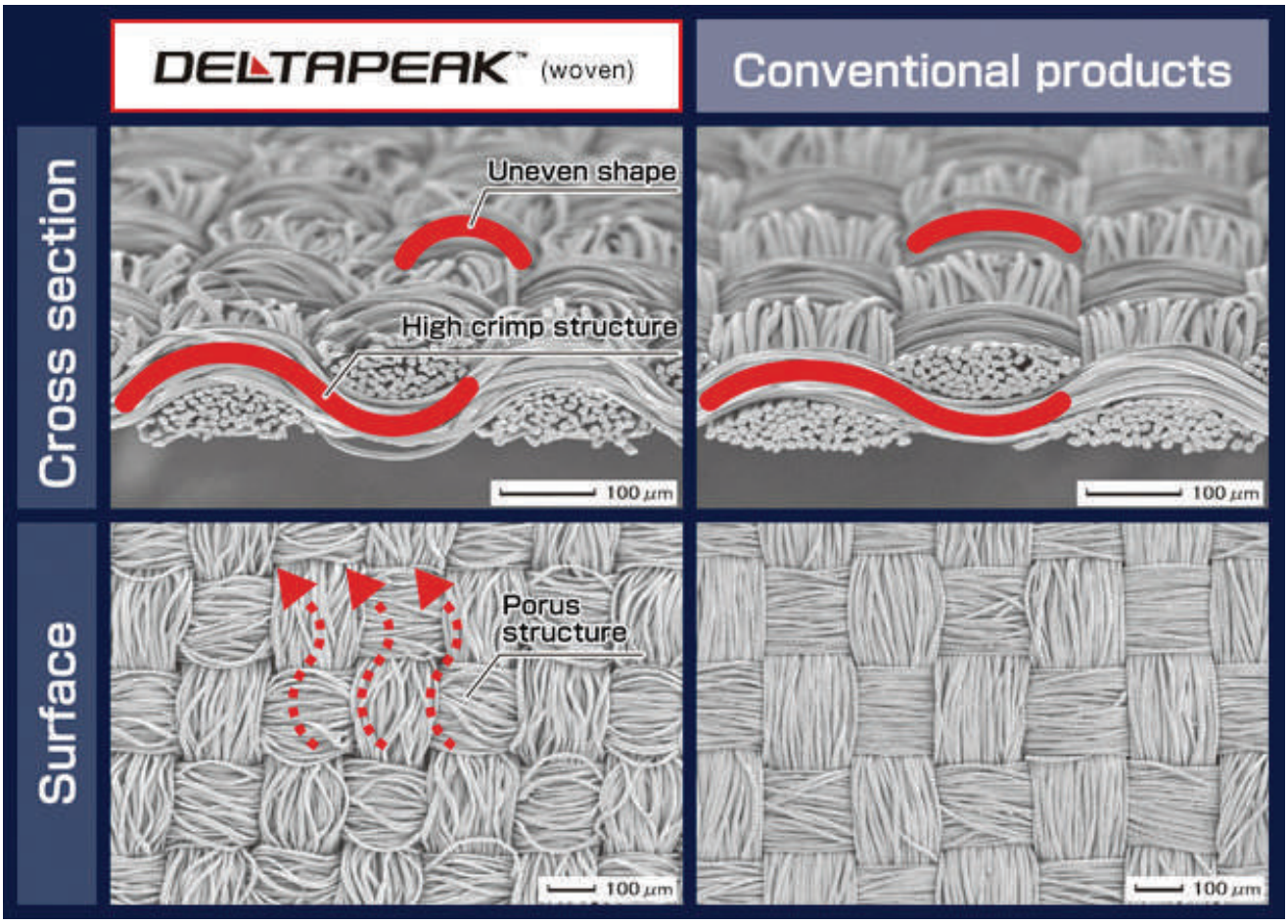
To RSVP for the event, log on to:
www.threadsol.com/PI_ApparelHK2018

force behind all ThreadSol products has been technology disruption for the apparel industry. Technology that is being actively used in all spheres of life like Artificial Intelligence and Big Data analytics need to be made available for the apparel industry. We are very excited to partner with PI Apparel to front a common stance - technology for apparel."

Manasij Ganguli would be participating in the panel discussion - Standardizing Digital Platforms to Overcome Issues of Systems Interoperability and Data Transfer. The discussion would revolve around need for interoperability, the challenges faced in order to achieve it and the requirement for global technology standards for the apparel industry.

The event will also feature a talk by Mr. Wilson Poon, BPM Manager, Tristate. It will elaborate on how Tristate, a client of ThreadSol, used technology innovation like Artificial Intelligence and Big Data to increase their top-line by 1.3%.

Teijin Develops New DELTAPEAK® Two-in-one Sweat-suit Fabric



www.teijin.com

Tokyo, Japan, May 31, 2018 - Teijin Frontier Co., Ltd., the Teijin Group's fiber and products converting company, announced today that it has developed a new line in the DELTAPEAK series-a two-in-one sweat-suit fabric that combines water-repelling and sweat-absorbing property-for autumn/winter 2019.

Although existing sweat-suit fabrics are already used widely for sports outerwear, there is a demand for extra-functional materials that are more stretchable, sweat-absorbent, quick-drying and lightweight. The new DELTAPEAK fabric, which is based on 4 dimensional bulky DELTAPEAK launched in 2017, offers a unique combination of water-repellency for outer surfaces and water-absorbency for inner surfaces. This next-generation sweat-suit fabric repels light rain and mud as well as prevents sweat stains-a two-in-one blend of outer-surface water repellency and inner-surface water absorbency-for superior all-around comfort.

Teijin Frontier's versatile new fabric also tolerates repeated washing thanks to its kneaded water-repellent yarn and advanced micro-crimping.

Special features of new DELTAPEAK two-in-one sweat-suit fabric

- Repels rain and mud
- Prevents sweat stains
- Water-repellency withstands repeated washing
- Highly water absorbent
- Quick drying

Core features of 4-dimensional bulky DELTAPEAK

- Lightweight and useful bulkiness
- Soft touch and luxurious appearance
- High cushioning, resiliency and elasticity for comfort
- Low drape with beautiful shape

Going forward, Teijin Frontier expects to combine its new fabric with other multi-functional materials for enhanced sportswear, fashionwear, uniforms and more. In addition, an eco-friendly version combined with fluorine-free water-repellent polyester fiber and recycled polyester fiber is now under development. Annual sales are expected to reach 200,000 meters by the fiscal year ending in March 2021.

Teijin Frontier's New SOLOTEX® Nanofiber Offers Excellent Gripping Power and Comfort

Teijin Frontier Co., Ltd., the Teijin Group's fibers and products converting company, announced today its development of SOLOTEX® Nanofiber, a polytrimethylene terephthalate (PTT) nanofiber with a diameter of 700nm that combines excellent gripping power with stretchable comfort for high-performance gloves, sportswear, and innerwear. SOLOTEX® Nanofiber will be adopted in Footjoy's golf gloves, which Acushnet Japan, Inc. will begin selling at golf shops throughout Japan from February 15. SOLOTEX® Nanofiber textiles and samples will be showcased at the Neo Functional Material 2018, which will take place at Tokyo Big Sight from February 14 to 16. SOLOTEX® Nanofiber offers high comfort thanks to soft, shape-retaining and stretchable SOLOTEX®. Moreover, since the surface area of nanofiber is tens of times greater than normal fibers, SOLOTEX® Nanofiber also has excellent gripping power, cooling and wiping property. In addition, it is highly conforming and slip resistant. Teijin Frontier is also promoting SOLOTEX® Nanofiber products for other applications, such as motorcycle gloves and medical gloves. Annual sales are expected to reach 60 million yen by the fiscal year in March 2021. In addition, Teijin Frontier is pursuing the development of new nanofiber made of materials such as polypropylene and nylon to meet diverse consumer needs.

www.teijin.com

Reebok Creates Revolutionary Space Boot for Astronauts

Reebok Introduces the Space Boot SB-01 with Latest Floatride Foam Technology

Canton, MA – July 18, 2017 Reebok has used its revolutionary Floatride Foam technology to create an extremely lightweight space boot. The Reebok Floatride Space Boot SB-01 is being tested by astronauts now and is the first evolution in space footwear in over 50 years.

In partnership with David Clark Company, Reebok has developed an innovative space boot providing lightweight protection and support while optimizing comfort and performance. The boot has been exclusively designed to accompany the final space suit which will shuttle astronauts to and from the International Space Station in Boeing's new vessel, the CST-100 Starliner.

The Reebok Floatride Run is currently available at retailers nationwide and through www.reebok.com.

"Weight is a huge factor in space travel with just a single pound having big financial implications. Traditional space boots were made of rigid leather with firm soles and were not integrated into the actual space suit," said Matt Montross, from Reebok Innovation. "Reebok Floatride Foam introduced three revolutionary elements to the space boot; it decreased the overall weight significantly, it brought the added comfort in a space boot and support that you would expect in a running shoe and it delivered a new level of sleekness and style."

Floatride Foam technology was first introduced back in April of this year, with the launch of one of Reebok's most technologically advanced running shoe, Reebok Floatride Run. Floatride Run has received wide praise around the world for performance and comfort, including "2017 Best Debut" honors by Runner's World Magazine.

The innovation and development journey behind both Floatride Run and Floatride Space Boot, SB-01 has ignited another Reebok Running innovation that has potential to break more barriers in footwear, with the Reebok Floatride 100g racer (100g in men's size 9).

"Athletes often tell us that with a lightweight performance running shoe, they can potentially increase their speed, but often times also sacrifice cushioning. Traditionally, super lightweight products equate to less cushioning- but not with the Floatride Racer. Floatride Foam technology allows you to maintain optimal cushioning in a super lightweight package," Montross continued.

The Floatride Racer will feature a feather-lite midsole (weighing under an ounce), single layer engineered mesh upper and weight optimized full coverage outsole. The breakthrough with the Floatride Foam is the ability to provide cushion without compromising performance. Designed specifically with speed and function in mind, the Floatride 100g Racer is currently under-going testing and will officially launch in 2018.

HOW TO GET THE NIKE ZOOM VAPORFLY 4%

Eliud Kipchoge, the fastest marathoner ever, has called Nike's 4% system "perfect...really perfect." Members of the media have proclaimed that it fuels the "fastest shoe on the planet," a statement backed up by an unprecedented domination of world marathons (more than half of all 2018 Marathon Major podium finishers had Nike Zoom Vaporfly 4% on their feet).

Now, Nike has upped the ante with a new 4% option that provides an even lighter, more breathable upper: The Nike Zoom Vaporfly 4% Flyknit.

What hasn't changed is the revolutionary technology that is the hallmark of the 4% system. Created in conjunction with Breaking2, the Nike Zoom Vaporfly 4% was designed with the goal of helping the world's fastest marathoners run their best. It features Nike ZoomX foam (which is ultra-lightweight, soft and capable of providing up to 85-percent energy return) and an embedded full-length curved carbon fiber plate (that increases stiffness to provide a sensation of propulsion). Together, this delivers an average of 4-percent improvement in running economy when compared to Nike's previous fastest racing flat. The Nike Zoom Vaporfly 4% Flyknit will retain these revolutionary features with a lightweight Flyknit upper that supports the foot.

Since the original Nike Zoom Vaporfly 4% hit retail in July of 2017, it has moved off shelves with a pace worthy of its technology — no doubt the Flyknit edition will follow suit. Use the guide below to find a pair near you.

www.news.nike.com

ECODOWN® FIBERS
The insulation with no down...sides

Despite the efforts of the apparel industry to move towards a more sustainable and cruelty-free approach, recent surveys report that 80% of cold weather clothing is still insulated with duck feathers. This is mainly due to the lack of a synthetic solution that provides the same look and loft as down. Thermore® takes the first step towards sustainability by releasing a truly revolutionary and inflatable product: Ecodown® Fibers.

Ecodown® Fibers ensure the same loft as high quality 90/10 feathers and can likewise be blown into a garment. The loft of down products is calculated with the "fill power test": fibers are blown through a cylinder and their volume is measured. The higher the "fill power", the puffier the jacket. Tests performed on Ecodown® Fibers have reported an outstanding fill power of over 600, which is how the product is able to guarantee that "puffy" look. Moreover, this insulation is incredibly durable: its one-of-a-kind multi-shape structure allows high resistance and prevents it from clumping when Ecodown® washed. Fibers advertising campaign. Not only are Ecodown® fibers animal-free, but they are also made from 100% PET bottles. Every jacket insulated with Thermore®'s fibers allows recycling up to 10 post consumer bottles. Along with a warm feel, the insulation achieves a soft touch without the use of microfibers, which would contaminate oceans and, ultimately, our own food.

www.thermore.com

TECHNICALLY INSPIRED NATURAL FIBRES

Cotton blends – super-soft and matte, in shimmering two-tone effect or shining with brilliance in low light – prove a surprising feature in summer 2020 with various hidden functions. In addition, the newly interpreted textiles with natural fibres are enhanced by PFC-free water repellent qualities and various wind- and weatherproof properties. The colour palette is focused on nature and fascinates with stony grey tones, variations on beige, and mellow greens and blues.

www.schoeller-textiles.com

DESIGNED NATURAL

The new schoeller®-shape qualities exude a natural freshness in summer 2020 with sandy, sunny colours or mellow green and grey tones. On super-soft, brushed surfaces, the PFC-free ecorepel® Bio technology based on renewable raw materials offers reliable waterproofing. Made into jackets, parkas or trench coats, the matte cotton polyamide fabric fascinate with urban chic.

LIGHT AND LIGHT

Whether used as an insert or for the entire jacket, the reflective elements of the schoeller®-spirit impress with hidden safety and benefits. The light of the summer season will bounce off this breathable cotton blend with its reflective coating and washed-out effect. The cotton quality features a reflective dot design in two-tone silver grey ensuring outstanding visibility in poor light.

SHINE AND SHINER

The ultra-light USP technology enhances two lightweight fabrics in transparent check design with silky touch or as a two-tone cotton-polyester blend. These technically inspired schoeller®-spirit qualities offer protection against wind and rain while preserving their natural breathability. This combined with the added benefit that the textile weight is barely increased by the protective layer, leaving the fabrics with a very pleasant feel.

PROJECT F.L.X.

www.levistrauss.com

Levi Strauss & Co. announced a transformative new operating model that will create a more sustainable supply chain and a cleaner jean. Called Project F.L.X. (future-led execution), this new model replaces manual techniques and automates the jeans finishing process, allowing the company to reduce the number of chemical formulations used in finishing from thousands to a few dozen.

Traditionally, denim finishing – which creates worn, faded design elements on jeans – has been a highly manual, labor-intensive and chemical-reliant process. Digitization enables a responsive and sustainable supply chain at an unparalleled scale. "Thirty years ago, jeans were only available in three shades: rinsed, stonewashed and bleached. Today those three shades have exploded into endless variations, all produced with very labor-intensive jobs and long lists of chemical formulations," said Bart Sights, vice president of technical innovation at Levi Strauss & Co. and head of the company's Eureka Innovation Lab. "We're designing a cleaner jean for the planet and the people who make Levi's® jeans, and we're doing it on a scale that no one else has achieved to date."

This new operating model is a major step forward in LS&Co.'s commitment to achieving zero discharge of hazardous chemicals by 2020 and accelerates the elimination of many chemical formulations that the company's Screened Chemistry program identified as "phase outs." Among the chemicals that will be eliminated is potassium permanganate, an oxidizer that is used industrywide to replicate authentic vintage finishes.

"This is a significant win for the industry," said Robert Strand, executive director for the Berkeley-Haas Center for Responsible Business. "It's inspiring to see how LS&Co. used constraints to drive innovation, paving the way for a more sustainable apparel industry. This is an important step forward that I hope others will follow." Beyond eliminating many chemicals, Project F.L.X. is expected to reduce textile waste by more accurately making what the market needs and may also provide the opportunity to save water in the future. The company has already proved it can use nearly 100 percent recycled water in the final manufacturing stages with Project F.L.X. and is exploring the possibility of rolling out this water recycling capability more broadly over time.

To help unlock the benefits of digitally enabled design and development, LS&Co. turned to long-standing partner Jeanologia, a leader in eco-efficient solutions for fabric and garment finishing. Since 1993, Jeanologia has operated with the ambition of advancing sustainable apparel manufacturing by delivering disruptive technologies, including ozone, laser and e-flow finishing systems. The company's like-minded focus on scalability was essential to supporting LS&Co.'s end-to-end, transformative vision.

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Współpraca:
Co-operation:

Targi Kielce SA. Kielce, Poland
e-mail: kidstime@targikielce.pl
tel. +4841 365 12 21

The CO2 savings of re-using 1 billion hangers per year represents:

The same amount of CO2 generated from manufacturing 10.6 billion plastic straws

The same amount of CO2 it takes to fly around the world 19 times

The same as removing more than 9000 black cabs from the road every year

The same amount of CO2 generated from manufacturing over 4 billion plastic bags

Research From Braiform Highlights Potential Damage of Clothes Hangers to the Environment

Research from Braiform, the world's largest re-user and recycler of garment hangers, has shown that clothes hangers can have just as detrimental an impact on the environment as plastic bags, straws, and bottles.

Clothes hangers are often overlooked in the debate about plastic waste within the retail sector. Yet with potentially tens of billions of clothes hangers ending up in landfills annually, their impact on the environment is significant.

The research by Braiform, verified by the Carbon Trust, found that re-using a hanger nine times reduces carbon emissions by a massive 79% (when compared to the single use model). The environmental benefits of this saving could be significant if all retailers took part in a hanger re-use program.

Braiform has a truly global footprint and already helps its customers to re-use over 1 billion hangers every year. This process also leads to savings of more than 35,000 metric tonnes of plastic materials from going to waste and entering landfill, as well as importantly reducing costs for the retailers.

As the war on single use plastics intensifies, Braiform's hangers are being re-used on average nine times across the world and the business has partnerships with prominent high street fashion retailers and global brands.

Dr Jim Collingham, Head of Re-use Operations Braiform, commented:

"We hope that this research helps bring plastic hangers into the wider public debate about the impact on our environment of single use plastics. By adopting a more circular economy model, retailers can become more sustainable which is better for both the environment and their customers."

"As the environmental costs associated with single-use plastics and waste gain wider public awareness, retailers have started to address these key challenges. Actions to improve retail's carbon footprint have rightly taken place, from plastic bags to plastic straws but there is still a long way to go."

Continental Protects Reliably Against Evaporation While Simultaneously Generating Sustainable Energy from the Sun

- **Potential use: water supplies in hot countries and near airports**
- **Special films with integral photovoltaic modules installed in Cyprus for the first time**
- **Member of the Continental Executive Board Duensing: "Verifiable contribution to environmental protection**

Caption Continental Solar Floating Cover Cypres

Continental has installed the first floating solar film in Cyprus, thereby reliably protecting all the water collected in a reservoir in the Limassol region against evaporation and unwanted contamination. At the same time, the photovoltaic modules integrated in the special film generate electricity from sustainable solar energy.

www.continental-corporation.com

Hanover, May 2018. Technology company Continental has installed the first floating solar cover in Cyprus, thereby reliably protecting all the water collected in a reservoir in the Limassol region against evaporation and unwanted contamination. At the same time, the photovoltaic modules integrated in the special film generate electricity from sustainable solar energy. This is used to power systems that pump the water. "In doing so, Continental is demonstrating its long-term contribution to environmental and climate protection. There is a huge demand on our planet for off-grid water and power supplies, especially in arid regions. Innovations such as this generate more agricultural products and enable lives to continue cost-effectively,"explains Hans-Jürgen Duensing, who is responsible for the Conti-Tech division on Continental's Executive Board. This is the future for water and energy supplies in hot regions with little rainfall.

Self-sufficient electricity and water provision

Portable and process water and the supply of electricity are key elements of social and economic development: for agriculture, hygienic conditions, and commercial initiatives and, in the long term, for education and practical training. The innovative solar film enables water to be transported to remote regions via self-sufficient pumping stations and reservoirs. An additional advantage is that areas without any appreciable access to other energy sources can ensure the autonomous supply of solar energy. "This is the first system to combine an effective means of water protection with climate-protecting energy generation. The floating solar film compensates in a straightforward manner for the water scarcity and lack of power and ensures lower algal growth in the water thanks to the film's decades-long resistance to UV light," says Tobias Haarburger, who is responsible within Continental for driving this innovation, explaining the potentials and benefits of the system.

This installation offers potential right across the world for both, state-owned and privately owned water supplies in hot countries, for example in Africa or in the Mojave Desert south of Las Vegas in the US.

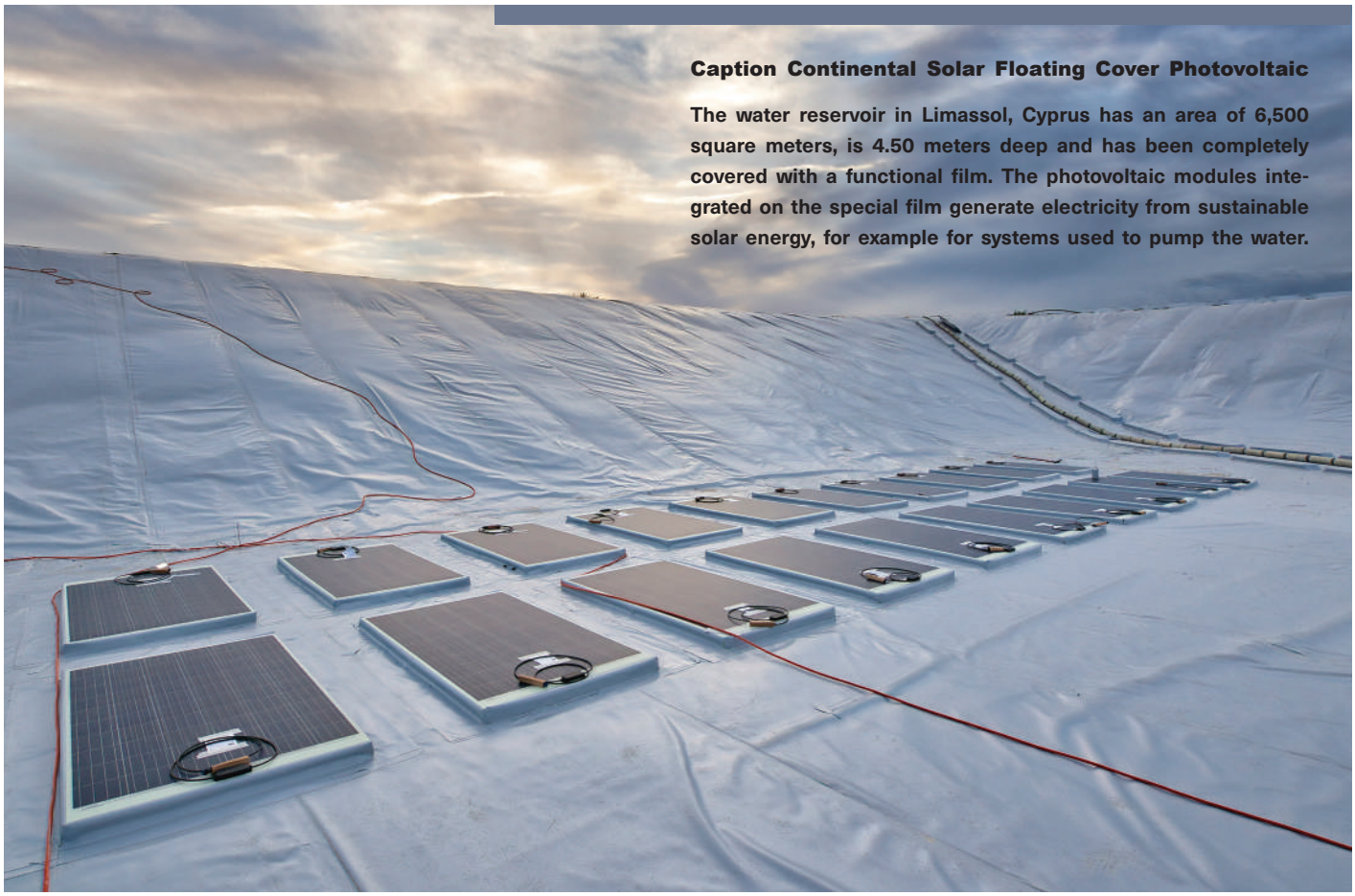
Special films with photovoltaic modules protect against water evaporation in Cyprus

Working in conjunction with the central Cypriot water authority, Continental has installed the world's first floating solar film in the Limassol region of southern Cyprus. The water reservoir has an area of 6,500 square meters, is 4.50 meters deep and has been completely covered with the functional film. "That means the stored water, which is used to irrigate agricultural land in the surrounding area, does not evaporate," says Haarburger, who has a degree in plant engineering and is an expert in water treatment. The first stage of the project in March involved applying 80 photovoltaic modules with a power rating of 20kWp to the film. Around 700 more elements will follow in a second phase. The film used is a three-ply, semi-flexible laminate made of PVC that is strong enough to allow people to walk on it and features decades-long resistance to UV light. There are also immersion pumps from Germany installed on the reservoir that are capable of pumping away any rainwater on the surface.

Continental supplies a product that is easy to install, thanks to the high degree of prefabrication. A digger is all that is needed to excavate the reservoirs. There is no need for costly concreting and large construction sites. The sheets are up to 1.80 m wide and are easily positioned and joined to each other. It is possible to walk on the tear-resistant films, so maintenance work is easy to perform. Wind and sand have little effect on the flat modules. The system has a lifetime of several decades. Discrete floating solar units offer little or no cover for the water.

Such systems are also used, however, to cover water reservoirs near airports. "Flocks of birds that rest on the usually artificial ponds would therefore not impede nearby flight operations," declares Haarburger, highlighting another additional benefit. Furthermore, the quality of the stored water is improved, since algal growth is prevented. S a result, algae do not clog screens or filters. In addition, any potential odor nuisance is avoided since fermentation or digestion processes can no longer occur.

The innovation is a joint achievement of various experts: engineers and innovation managers from Continental developed the novel system in collaboration with water managers, high-voltage specialists, photovoltaics manufacturers and scientific institutes. Continental was honored with the Inovyn Award in the "Sustainability" category in 2016 for its innovative, energy-generating surface cover for water reservoirs.



Caption Continental Solar Floating Cover Photovoltaic

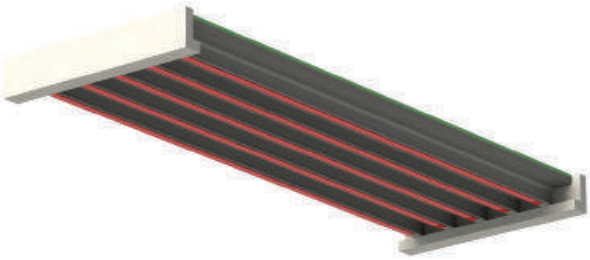
The water reservoir in Limassol, Cyprus has an area of 6,500 square meters, is 4.50 meters deep and has been completely covered with a functional film. The photovoltaic modules integrated on the special film generate electricity from sustainable solar energy, for example for systems used to pump the water.

Dutch innovation saves billions of euros on the maintenance and renovation of concrete bridges

In the sixties and seventies of the last century thousands of concrete bridges were built in Europe, but many have suffered concrete damage due to concrete rot, heavy loads and the penetration of de-icing salts. Moreover, their capacity has become inadequate due to increased and heavier traffic. Approximately ten percent of all concrete constructions must be dealt with thoroughly in the next few years. Instead of demolishing these bridges and building a new one, SUREbridge provides a sustainable solution.

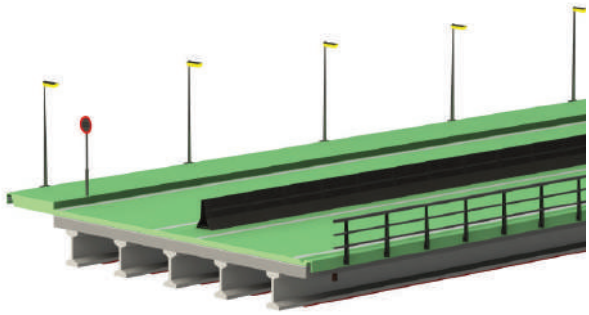
INFRAVATION:

A partnership of ten European countries, the United States and the European Commission stimulates innovations to improve the infrastructure. Under the name Infravation (Infrastructure Innovation Program), the participants focus on developing new materials and techniques to modernize the highly outdated road infrastructure on both continents. Rijkswaterstaat acts as coordinator and works closely with sister organizations in the countries involved. SUREbridge is one of the most important initiatives within Infravation.



SUREbridge:

In 2016, SUREbridge was launched: ‘Sustainable Refurbishment of Existing Bridges’. Rijkswaterstaat, Chalmers University of Technology (Malmo-Sweden), AICE Consulting SRL and University of Pisa have worked closely together in this project. Using the InfraCore® Inside technology of the Rotterdam company FiberCore Europe, the capacity and functionality of existing concrete bridges can be increased. Their lifespan is considerably extended, while hardly any maintenance is required in the coming years. The technology underlies fiber-reinforced plastic (composite) bridge decks that FiberCore Europe has been producing for a number of years. Because with the application of the InfraCore® Inside technology the old concrete constructions do not have to be demolished, but with some adjustments can be reused, there is much less nuisance for local residents - with shorter construction times - and there are important environmental benefits besides the financial effects.



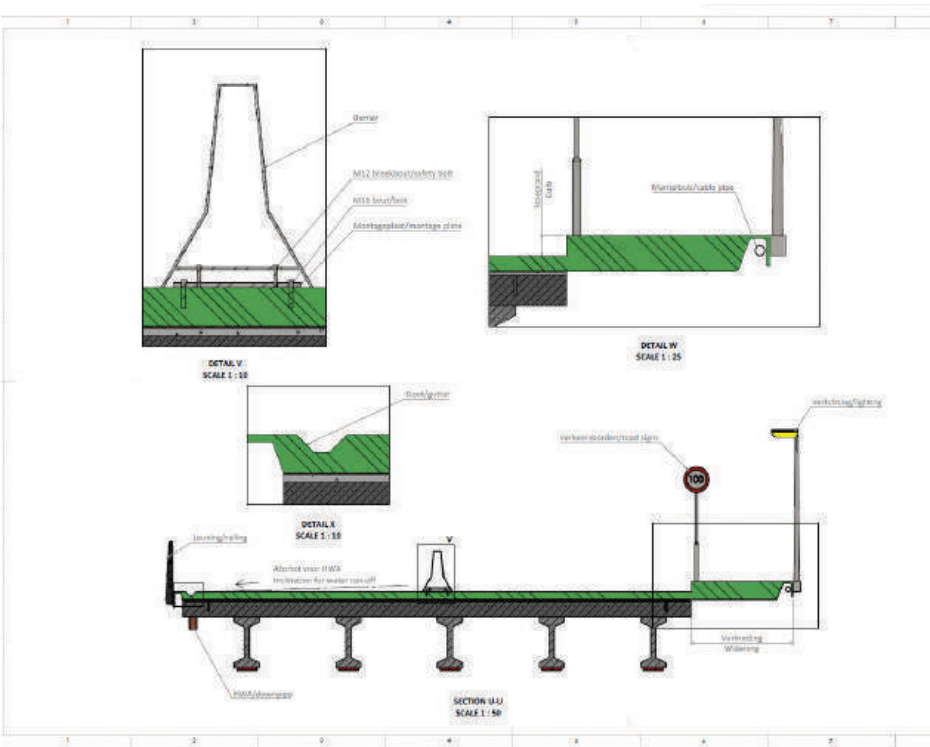
www.fibercore-europe.com

PREVENT UNSAFE SITUATIONS:

Europe has about one million concrete bridges and viaducts. Ten percent of this must be tackled urgently to prevent unsafe situations. It often happens that bridges, especially in the United States, suddenly collapse. The European Construction Technology Platform (ECTP) has calculated that road transport is expected to double by 2040. European governments have calculated that traffic jams cost one percent of the gross national product each year, with bridges among the biggest bottlenecks in the road network. That is why recovery means not only strengthening and modernizing, but often also widening the bridge deck.

HYBRID SOLUTION:

In the coming years about 10 percent of the concrete bridges built in the sixties and seventies must be thoroughly renovated. The costs for this renovation round are approximately 70 billion euros in the EU and the USA. Instead of demolishing the bridge and building a new one, the SUREbridge concept is based on a mounted composite InfraCore deck. This new deck can also be immediately wider than the existing situation. Together with the prestressed carbon reinforcement at the bottom, this hybrid solution gives more strength and stiffness, while the weight hardly increases. According to Chalmers Technical University, the savings alone can rise to over 8 billion euros in the EU alone:"Assuming that the proposed method, in the least optimistic case, would result in 20% reduction in the refurbishment costs, it would result in a saving equivalent to € 8,000,000,000. It is worth mentioning that this figure is just the saving in the initial cost."



In order to arrive at a definitive design, FiberCore Europe worked closely together with Chalmers Technical University and the Italian engineering firm AICE. SUREbridge as an innovation process has been completed and has now been tested in a 1-to-1 test. Now it is ready for further development into a technology that can be used by everyone. We are currently working on the first application of SUREbridge in the Netherlands.

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Design breakthrough cuts cleanup time in half, first parts of system now in production.

The Ocean Cleanup, the Dutch foundation developing advanced technologies to rid the oceans of plastic, today announced it will start extracting plastic from the Great Pacific Garbage Patch within the next 12 months. The Ocean Cleanup further announced that parts of its first cleanup system are already in production. Thanks to an improved design, The Ocean Cleanup has increased the efficiency of the system, allowing for the cleanup of half the Great Pacific Garbage Patch in just 5 years.

The main idea behind The Ocean Cleanup is to let the ocean currents do the work. An installation of U-shaped screens channels floating plastic to a central point. The concentrated plastic can then be extracted and shipped to shore for recycling into durable products. The improvements announced today involve the introduction of a mobile, or drifting system. Rather than fixing the floating screens to the seabed at great depths, The Ocean Cleanup will apply sea anchors to ensure the floating screens move slower than the plastic. Rather than one massive barrier, the improved, modular cleanup system consists of a fleet of screens.

This new, modular technology and the successful funding round announced on May 3, 2017, enable The Ocean Cleanup to accelerate production, deployment and the actual extraction of plastic from the ocean. Testing of the first system will start off the American west coast by the end of 2017. With the first deployment in the Great Pacific Garbage Patch in the first half of 2018, The Ocean Cleanup will start its mission two years ahead of schedule.

In front of a live audience of thousands of its supporters, and a large group of followers on-line, The Ocean Cleanup shared details on the improved design, and announced the start of the cleanup. Speaking at the Werkspoorkathedraal in Utrecht, the Netherlands, The Ocean Cleanup's founder and CEO Boyan Slat demonstrated the new technology and unveiled the first parts of the cleanup system: four 12-meter (40-foot) high anchor components.

Boyan Slat commented: "At The Ocean Cleanup we are always looking for ways to make the cleanup faster, better and cheaper. Today is another important day in moving in that direction. The cleanup of the world's oceans is just around the corner." He added that the large-scale trials of its cleanup technology in the Pacific Ocean later this year are still experimental in nature. "Due to our attitude of 'testing to learn' until the technology is proven, I am confident that – with our expert partners - we will succeed in our mission."

In June 2018 the prototype was installed in the North Sea, 23 km (12 NM) off the Dutch coast, where it will remain for one year. The objective is to test how The Ocean Cleanup's floating barrier fares in extreme weather at sea – the kind of conditions the system will eventually face when deployed in the Great Pacific Garbage Patch.

The 100 meter-long barrier segment to be deployed in the North Sea helped validate the survivability of the system. Sensors tracked every motion of the prototype and the loads it was subjected to. The data gathered will enable engineers to develop a system fully resistant to severe conditions during the cleanup of the Great Pacific Garbage Patch. At the North Sea test site, conditions during a minor storm are more severe than those in exceptionally heavy storms (occurring once every 100 years) in the Pacific Ocean.

3M™ Glass Bubbles Enables First-Ever, Ultra Lightweight Sheet Molded Composites with Class A Paintable Surfaces for Automotive Manufacturers

As automotive manufacturers look to improve fuel economy and battery range for electrification, material lightweighting without compromising mechanical integrity is vital. Metals, although lightweight, can come with indirect processing and manufacturing costs and may become even more expensive with the uncertainty surrounding global metal supply. Sheet molded composites (SMCs) are a viable alternative to metals in certain applications, while still achieving the desired physical properties. 3M today introduces Glass Bubbles S32HS to help OEMs achieve up to a 40 percent weight reduction of composite parts, at a density below 1.0 g/cc, while still enabling a class A paintable finish. This innovation makes SMCs an attractive option in automotive design for OEMs.

"With the trend toward electric and high efficiency cars, reducing overall vehicle weight is key to staying competitive," said Ray Eby, vice president of 3M Automotive Electrification. "A typical automobile has about 660 lbs. of composite parts. With ultra lightweight SMCs enabled by our glass bubbles, OEMs can significantly improve a vehicle's energy usage, while saving money– one less bump in the road in the race to automotive electrification."

For many years, 3M has partnered with the automotive industry to enable weight reductions for major automotive manufacturers. By replacing conventional fillers, these hollow glass microspheres can reduce the weight of molded parts without sacrificing strength or aesthetics. For the first time, 3M has been able to break the density barrier, making ultra lightweight SMCs more competitive to steel and aluminum, opening up new possibilities for the material mix in automotive applications.

"Our customers continue to challenge us to lower the density and weight of fiberglass reinforced material systems to support their automotive lightweighting efforts," said Terrence O'Donovan, vice president, marketing and sales for Core Molding Technologies. "A density of 1.0 g/cc or below has long been a goal, while still enabling a Class A finish. Using 3M Glass Bubbles helps enable us to meet our customers' expectations."

3M glass bubbles are an established lightweighting technology used in enabling lightweight sealants, injection molded parts and SMCs. 3M continues to be at the forefront of automotive lightweight material innovation with the launch of Glass Bubbles S32HS.

3M Introduces Elastic Blend Nonwoven Tape for Improved Conformability, Skin Breathability

3M announced it has expanded its lineup of advanced adhesives for medical devices with the addition of 3M™ Single Coated Medical Extended Wear Adhesive Nonwoven Tape on Liner (3M™ 4077), a pressure sensitive adhesive that offers omni-directional stretch for superior conformability and breathability. The thin, water-resistant tape offers excellent initial skin adhesion and a 14-day wear time, as well as improved conformability during long wear times compared to other tapes in the product line.

"Durability is important to medical device wearers, which is why we don't limit participants' contact with moisture in our wear time studies," said Marcello Napol, global business director in 3M's Critical and Chronic Care Solutions Division. "Now we're able to offer a product that takes functionality to the next level – 3M 4077 is water-resistant, stretchy, breathable and offers the longest wear time in our current portfolio."

3M 4077 features an extended wear adhesive combined with a white meltblown elastic nonwoven backing on a silicone release liner. It is EtO, E-beam and gamma sterilization compatible.

Compliant with ISO:10993 sections 5 & 10, 3M 4077 is approved for use on intact skin. The tape is part of the extensive adhesives product line 3M offers the medical device manufacturing, design and supply industries. Through the company's diversity of technologies – paired with its 55 years of experience in the medical adhesive business and team of experts – 3M provides medical device professionals with the tools they need to satisfy their project requirements and confidently navigate their way to market.

www.news.3m.com

Threepart sandwich, one thermoplastic, many possibilities

Polyethersulfone Ultrason® E: One single polymer for manufacturing sandwich structures quickly and cost effectively

Intrinsically flame retardant: Particularly well-suited for interior components in airplanes

www.basf.com

Manufacturing sandwich structures for airplane interiors cost effectively and quickly: With the polyethersulfone Ultrason® E from BASF, manufacturers of interior airplane components can now take a great step forward in achieving this goal. The major advantage is that the same thermoplastic Ultrason® can be processed into different components of the sandwich structure in a single tool. This reduces cycle times and thus also manufacturing costs. The sandwich consists of a foam core and carbon fiber laminates, which are all made of Ultrason® E. If needed, the thermoformed foam core with cover layers can then be overmolded with the carbon-fiber reinforced Ultrason® E 2010 C6 to incorporate reinforcements, structures or additional functional elements into the sandwich. The combination of 30% carbon fibers with the amorphous high-temperature plastic Ultrason® guarantees extraordinary and constant mechanical properties for the light foam sandwich over a temperature range of -100 to +200°C.

Sandwich structures allow for particularly low weight while maintaining high flexural stiffness. Therefore this design is especially well suited for applications in the interior of airplanes, e.g. panels, side walls, luggage compartments, doors, cabin-separating walls, but also trolleys and cooking modules. Foams made of Ultrason® E have been approved for use in airplanes. The material, with its exceptionally high limiting oxygen index of 38 (according to ASTM D 2863), distinguishes itself because it meets the requirements for commercial aircraft with regard to combustibility and heat release ("fire, smoke, toxicity") already without the addition of flame retardants, which means it is intrinsically flame retardant. This is why, for example, the Swedish aircraft supplier Diab uses the BASF polyethersulfone to manufacture foam core materials with different densities.

Sandwich components which can be manufactured thermoplastically in this way have numerous advantages compared to traditional honeycomb structures that are coated with phenolic resins: They can be produced faster in an automated process, they offer various processing options such as thermoforming into different geometries or overmolding for reinforcing ribs and additional functional integration. Thanks to weight-optimized, thermoplastic sandwich structures with additional functions it is possible to realize new lightweight materials for aviation, which have improved characteristics and a significantly reduced cost structure compared to traditional sandwich structures.

For the development of a demonstrator with Ultrason® as a foam core, as carrier for carbon-fiber laminates and overmolding material as well as the suitable production concept, a group from the research project “MAI Sandwich” won the JEC Innovation Award 2018 in the category “Aerospace Process.” “MAI Sandwich” is part of the leading-edge cluster “MAI Carbon” which is promoted by the German Federal Ministry for Training and Research.The project was coordinated by the Chair of Carbon Composites at the Technical University of Munich, Germany. The other partners are Airbus, BASF, BMW, SGL Carbon, Foldcore, Neenah Gessner, New Materials Bayreuth and Werkzeugbau Siegfried Hofmann. The award-winning concept shows that long cycle times can be reduced drastically to five minutes for a panel of one to three square meters using the traditional production method. This result was possible due to the optimal interplay of the few materials used and the development of an innovative, fine-tuned production sequence that combines the three techniques of thermoforming, injection molding and fusion bonding in an automated facility.

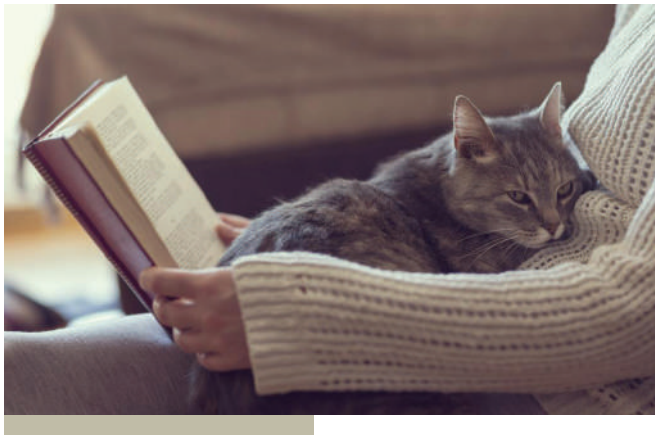
Ultrason® is the trade name for BASF’s product range of polyethersulfone (Ultrason® E), polysulfone (Ultrason® S) and polyphenylsulfone (Ultrason® P). It is used to manufacture lightweight components in the electronics, automobile and aerospace industries. The thermoplastic material can withstand high temperatures of up to 220°C without changing its characteristics, and shows extraordinary chemical resistance. The high-performance plastic is also used in water-filtration membranes and in components that come into contact with hot water and food. Because of their extraordinary property profile the Ultrason® brands can substitute thermosets, metals and ceramics.

JEC Innovation Award 2018 in the category „Aerospace Process“

DEVAN LAUNCHES NATURAL TECHNOLOGY TO MAKE TEXTILES FREE FROM PET ALLERGENS

Textile-finishing innovator Devan Chemicals recently launched a technology to make textiles free from allergens shed by cats and dogs. Purissimo™ is a probiotic-based solution and therefore completely natural. The technology was inspired by their experience with Purotex®, a successful allergen reduction solution that has been used in bedding for more than ten years.

Over the past few decades, pets have been climbing up the social ladder and have moved from outdoor protectors to indoor family members. The American Pet Products Association estimates that 65% of US households own a pet, with cats and dogs being the most popular ones. In Europe, more than 30% of the households own a pet. Although the data are not unequivocal, researchers believe this increasingly close contact between humans and pets and the resulting higher allergen exposures might be a reason for the increase in pet allergies.



Purissimo™

Since many studies have suggested that allergic diseases have increased in frequency, Devan thought it was about time someone came up with a solution. Purissimo™ is a natural technology, inspired by Devan's years of experience with Purotex®, a very successful allergen reduction technology that is being used in the bedding industry for more than ten years. With a significant reduction in the house dust mite population of more than 99%, Purotex® has proven to be an effective, preventive strategy for reducing allergic diseases related to house dust mites.

But, unfortunately allergies are not limited to beds and house dust mites alone, and so Devan started exploring what further could be done to reduce health problems related to allergic reactions. After months of testing, the company came out with a solution for allergies triggered by pets such as cats (cat allergen Fel d 1) and dogs (dog allergen Can f 1). Test results show a significant reduction of 92,8 % on the amount of cat hair allergen Fel d1 found in treated samples. The technology is based on probiotic bacteria and therefore, completely natural.

Probiotics

First, inactive probiotic bacteria are encapsulated into microcapsules. These microcapsules are then integrated into textiles. When the fabric is exposed to friction, the microcapsules break open and release the spores. The spores absorb humidity, are then transformed into probiotic bacteria and start to consume the organic matter which contains the various allergens that cause allergic reactions and asthma.

Since pet allergens are also found in homes where there aren't any pets (because of dispersion by adherence to textile surfaces such as clothing and shoes), Devan's solution could be used to treat household textiles such as carpets, curtains, upholstery fabrics, etc., resulting in a clean, fresh and allergen-free environment. Also think of car blankets and other pet blankets. And not only in our homes, but also in public spaces like schools, hospitals, libraries, etc., this technology could be used to prevent the dispersion of pet allergens and the 'second-hand' exposure that comes along with it.

www.devan.net

Safe leather processing with the new LEISTER protection nozzle

Do you know LEISTER, above all, uses hot air for plastic welding? LEISTER is known for this, but there's a lot more you can do with hot air: Other materials also can be heated to process them. Leather, for example, can be softened, smoothed, and formed using hot air.

Burn holes in leather, which can occur when smoothing with hot air equipment, are a constant hot topic in the truest sense of the word. Because this topic makes our customers unhappy, our clever specialists have come up with something new.

Visit to the Schuler leather Atelier in Einsiedeln

Leo Schuler, the friendly owner of the Lederatelier Schuler in Einsiedeln, Switzerland let Matthias Kaserer, design engineer in the Hand Tools business line, and Urs Zimmermann (Urs works in our marketing department and is responsible for videos and photos, among other things) have a look over his shoulder while working. Thanks to Leo Schuler we now can show you in our short film and photos, how leather processing works—without causing burn holes—with the GHIBLI AW and the new LEISTER protection nozzle

Safety distance and temperature are essential

"When the sensitive leather comes into direct contact with the hot heating tube of the GHIBLI, it has happened. There is either a burn hole or ugly cracks," says Leo Schuler, and that's annoying. Especially when he reupholsters the leather seats of vintage cars, he works with expensive leather and often has to "iron out" small folds that can occur when upholstering the seats.

The new protection nozzle provides enough distance between the GHIBLI and the leather, and it does not get hotter than 60 C (140 F) even at maximum power. Mr. Schuler still can touch them with his fingers without burning himself. The GHIBLI AW itself can reach temperatures of 620 C (1,148 F). At this temperature it is clear that leather burns, as well as Mr. Schuler's fingers.

Protection - not only for leather and fingers

Our specialists are proud of their new development and our customers are happy that nothing is damaged when working with sensitive materials such as leather, artificial leather and textiles. The protection nozzle is not only suitable for leather, but also for all sensitive materials that are processed, smoothed or stretched with hot air, and of course, also to protect against burns on your fingers and arms.

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Efficient technical solutions from KARL MAYER for producing terry goods with ecological benefits

TERRY.ECO – big on absorbency, small on environmental footprint

Sustainability and environmental protection are becoming increasingly important in textile production – and this also applies to the production of warp-knitted terry fabrics. These fluffy, absorbent fabrics are absolutely indispensable for the bathroom and home, and are used in huge volumes all over the world. This means that ecological optimisation, carried out along the entire production line, has obvious effects.

As far a fabric production is concerned, KARL MAYER can offer some effective technical solutions for both the warp knitting and warp preparation sectors.

Weaving: sustainability begins with warp preparation

KARL MAYER's PROSIZE® sizing machine can offer advantages for the environmental footprint of the entire manufacturing process when producing woven terry goods.

This efficient warp preparation machine operates on the basis of a prewetting principle, which involves soaking the yarn with hot water before the size is applied. This permits savings of up to 40% to be made in sizing additives and energy. This principle is simple yet effective: the water penetrates into the hollow spaces of the fibrous structure and partially fills them once the excess water has been squeezed out. During subsequent sizing, the water in the damp yarn rapidly forms a bond with the size. The textile agent is, therefore, absorbed more rapidly and easily by the warp yarns than with processes that do not involve prewetting. On the other hand, the diluting effect of the water in the yarn structure ensures that most of the size remains on the fibre surface. This reduces the consumption of chemicals.

To carry out this beneficial pretreatment process, the PROSIZE® has been equipped with the HSB-PW size box, i.e. it is available as a prewetting version.

The innovative size box also delivers ecological advantages for the sizing process itself. Instead of the usual immersion and bath application process, the size is applied in three, highly turbulent, homogeneous application zones, with spray bar technology and a subsequent application/squeeze roller system. This well-thought-out processing sequence can reduce the consumption of sizing agent by up to 10%. Reduced size consumption also means less effluent and a lower energy

consumption when preparing the chemicals for application to the yarns.

The spray technology also offers advantages in terms of conserving resources, since yarn rejects as a result of long machine stoppages are minimised. With the immersion process, if the machine is stopped, the yarns remain in this position in the size. Over-sized sections, so-called stop marks, are produced, which cause problems with rejects during subsequent sizing and weaving – and this is even more of a disadvantage during frequent and rapid warp changes.

Warp knitting: ecological advantages during production

KARL MAYER can supply the TM 4 TS-EL for producing warp-knitted terry fabrics. This four-bar tricot machine processes staple-fibre yarns and produces high-quality textiles, in which the terry loops are firmly anchored into the ground during the stitch-forming process. The pullout resistance of the loops is much higher than that of comparable woven fabrics. Warp-knitted towels and bathrobes can, therefore, be used for longer, which generates less waste. The longer replacement cycles also reduce the consumption of resources.

Furthermore, warp-knitted terry fabrics have a general technological advantage over woven fabrics in terms of the environmental loads generated during production, i.e. warp knitting does not require a sizing process, which saves on textile chemicals, effluent and energy to the value of roughly 0.20 US dollars/kg - approximately 30% of the production costs (without the yarn) when producing the raw fabric. No sizing also means no desizing, which reduces the environmental loads even further. In practice, water consumption can be reduced by 9 l and energy consumption can be reduced by 0.6 KW per kg of fabric.

Warp knitting also scores points for sustainability during fabric production. The TM 4 TS-EL consumes roughly 87% less energy per kg of fabric produced than airjet weaving machines, which require large amounts of energy to produce the compressed air. This advantage is also enhanced by the high efficiency of this terry warp knitting machine. At a width of 186'' and a speed of 800 min−1, the TM 4 TS-EL has a daily production rate of about 1,800 kg of terry fabrics with a weight of 400 g/m2 - 250% more than on an airjet weaving machine.

A specialist in processing cotton

Following a long gap in what was available in the range, the TM 4 TS-EL was premiered at ShanghaiTex 2015 as a new terry warp knitting machine for processing cotton. This new machine is both versatile and highly productive. Thanks to the modern EL pattern drive system, the speed of the TM 4 TS-EL has been increased by about 30% compared to its predecessor with manual transmission. A working width of 186" has increased output even further.

This efficient machine can produce every type of terry article, especially hand and bath towels, i.e. webs having long repeats, smooth ends to the borders, and cutting edges. The EL system also enables the pattern to be changed quickly and easily.

The machine is equipped with the standard gauge of E 24 for terry goods. Further technical features include the KAMCOS® system, a brushing unit for aligning the pile loops, and a beam frame for large warp beams with long running lengths. Like all KARL MAYER's products, the TM 4 TS-EL operates at a high level of reliability, precision and user friendliness.

SEAMTEK W-900 AT

The latest welding technology on the market has many advantages. Here are the most important ones at a glance:

safe

The wedge cools down swiveled out. This means that the user is protected from being burnt.

low maintenance requirements

There is no need for tiresome grinding unlike a conventional wedgie. This saves time and effort.

innovative

Welding with variable welding speeds in the welding process. The speed is adjusted with a foot pedal – like a sewing machine. The welding temperature is controlled automatically when welding.

efficient

High degree of efficiency due to the direct power supply to the wedge which can be seen in the low consumption of energy.

fast

High quality seams are welded up to 30 meters per minute.

economical

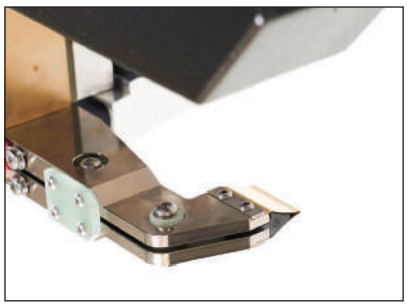
The new technology does not have to be preheated. This means that the SEAMTEK W-900AT used virtually no energy when in standby mode. Despite this, it can reach the desired target temperature in under 1 second.

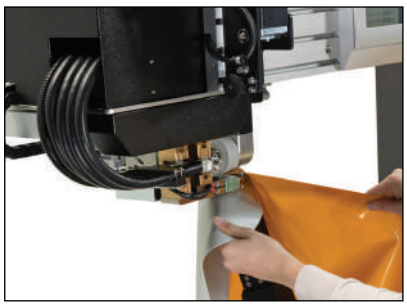
low costs

A spare part cost less than USD 25.

precise welding zone

The welding zone is defined exactly. This means that the surrounding material is not damaged.





The SEAMTEK W-900 AT is setting new benchmarks in efficiency.

www.leister.com

The welding speed can be changed during the process, just like when using a sewing machine. Even complex contours can be welded as easy as child's play.

It is very energy efficient because only a thin wedge plate is heated rather than the entire metal wedge. At 30 meters per minute and with minimum energy requirements, various thermoplastics such as PVC, PE, PU, PP and many others can be welded to each other.

The innovative technology guarantees the best seams possible – not only visually, but also qualitatively (e.g. with regard to its strength). Sensitive materials, which are often used in the advertising industry, can be welded just as well and with equally high quality as roundings and curves.

Available October 2018

Soft multi-functional robots get really small

A new approach for fabricating soft materials at the millimeter scale paves the way to a new generation of flexible microrobots for medical and environmental tasks

Roboticists are envisioning a future in which soft, animal-inspired robots could be safely deployed in difficult-to-access natural and man-made environments, such as in delicate surgical procedures in the human body, or in spaces too small and unpredictable to be conquered with rigid robots or too dangerous for humans to work with rigid robots in. Centimeter-sized soft robots have been created, but thus far it has not been possible to fabricate multifunctional flexible robots that can move and operate at smaller size scales.

A team of researchers at Harvard's Wyss Institute for Biologically Inspired Engineering, Harvard John A. Paulson School of Engineering and Applied Sciences (SEAS), and Boston University now has overcome this challenge by developing an integrated fabrication process that enables the design of soft robots on the millimeter scale with micrometer-scale features. To demonstrate the capabilities of their new techniques, they created a robotic soft spider – inspired by the millimeter-sized colorful Australian peacock spider – from a single elastic material with body-shaping, motion, and color features. The study is published in Advanced Materials.

"The smallest soft robotic systems still tend to be very simple, with usually only one degree of freedom, which means that they can only actuate one particular change in shape or type of movement," said Sheila Russo, Ph.D., co-author of the study. Russo helped initiate the project as a Postdoctoral Fellow in Robert Wood's group at the Wyss Institute and SEAS and now is Assistant Professor at Boston University. "By developing a new hybrid technology that merges three different fabrication techniques, we created a soft robotic spider made only of silicone rubber with 18 degrees of freedom, encompassing changes in structure, motion, and color, and with tiny features in the micrometer range."

Wood, Ph.D., is a Core Faculty member and co-leader of the Bioinspired Soft Robotics platform at the Wyss Institute and the Charles River Professor of Engineering and Applied Sciences at SEAS. "In the realm of soft robotic devices, this new fabrication approach can pave the way towards achieving similar levels of complexity and functionality on this small scale as those exhibited by their rigid counterparts. In the future, it can also help us emulate and understand structure-function relationships in small animals much better than rigid robots can," he said.

In their MORPH – shorthand for Microfluidic Origami for Reconfigurable Pneumatic/Hydraulic (MORPH) devices – concept, the team first used a soft lithography technique to generate 12 layers of an elastic silicone that together constitute the soft spider's material basis. Each layer is precisely cut out of a mold with a laser-micromachining technique, and then bonded to the one below to create the rough 3D structure of the soft spider.

Key to transforming this intermediate structure into the final design is a pre-conceived network of hollow microfluidic channels that is integrated into individual layers. With a third technique known as injection induced self-folding, pressurized one set of these integrated microfluidic channels with a curable resin from the outside. This induces individual layers, and with them also their neighboring layers, to locally bend into their final configuration, which is fixed in space when the resin hardens. This way, for example, the soft spider's swollen abdomen and downward-curved legs become permanent features.

"We can precisely control this origami-like folding process by varying the thickness and relative consistency of the silicone material adjacent to the channels across different layers or by laser-cutting at different distances from the channels. During pressurization, the channels then function as actuators that induce

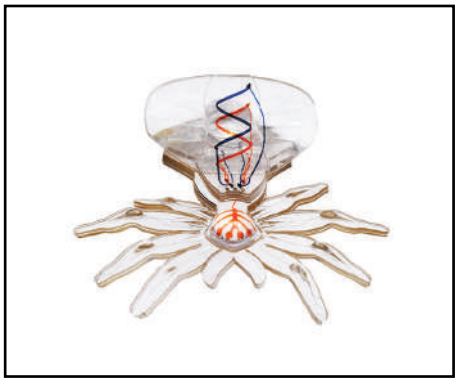
a permanent structural change," said first and corresponding author Tommaso Ranzani, Ph.D., who started the study as a Postdoctoral Fellow in Wood's group and now also is Assistant Professor at Boston University.

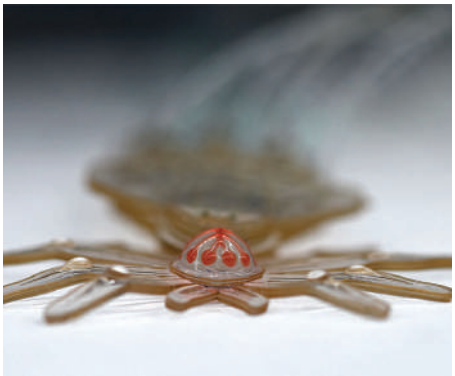
The remaining set of integrated microfluidic channels were used as additional actuators to colorize the eyes and simulate the abdominal color patterns of the peacock species by flowing colored fluids; and to induce walking-like movements in the leg structures. "This first MORPH system was fabricated in a single, monolithic process that can be performed in few days and easily iterated in design optimization efforts," said Ranzani.

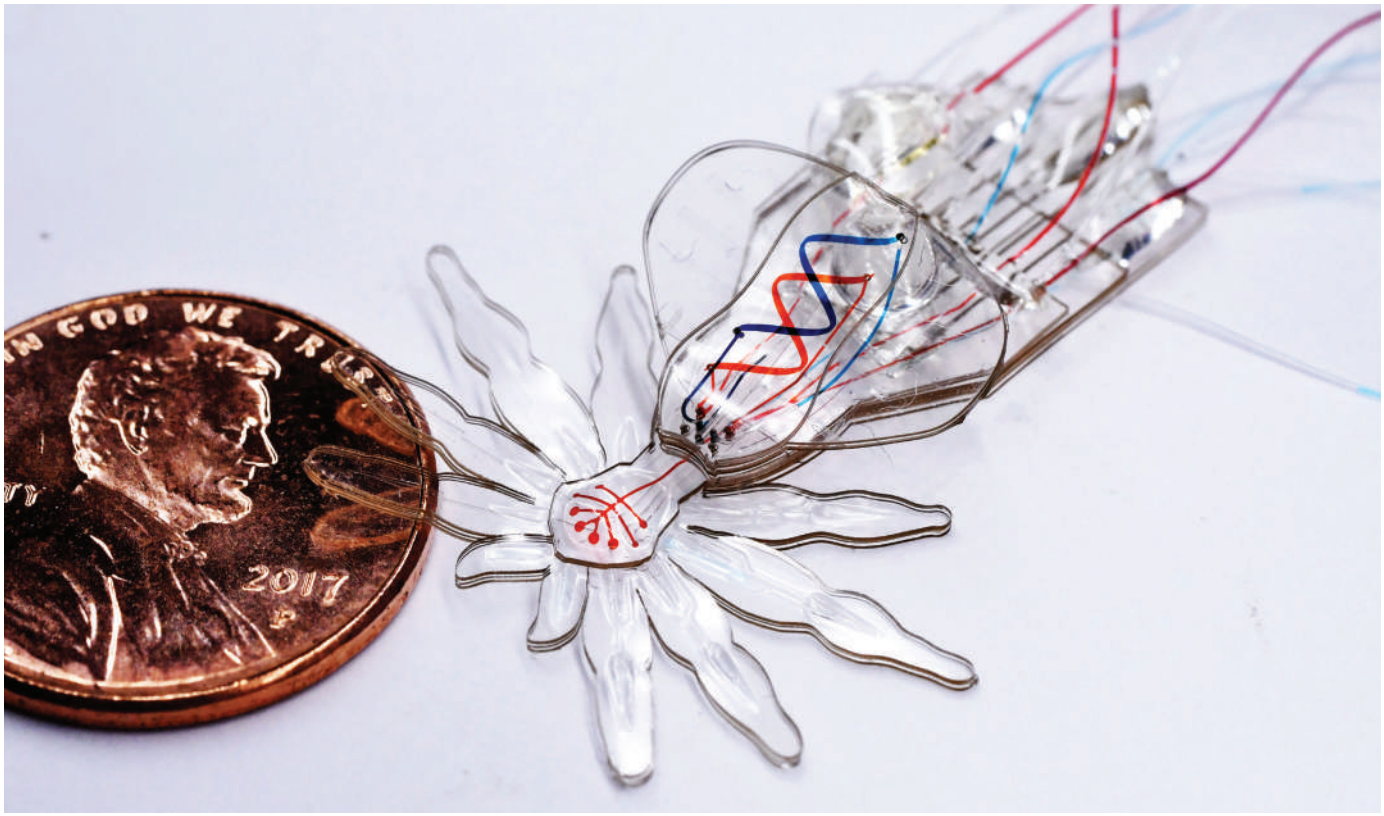
"The MORPH approach could open up the field of soft robotics to researchers who are more focused on medical applications where the smaller sizes and flexibility of these robots could enable an entirely new approach to endoscopy and microsurgery," said Wyss Institute Founding Director Donald Ingber, M.D., Ph.D., who is also the Judah Folkman Professor of Vascular Biology at HMS and the Vascular Biology Program at Boston Children's Hospital, as well as Professor of Bioengineering at SEAS.

Additional authors on the study are Nicholas Bartlett, a Graduate Student on Wood's team and Michael Wehner, Ph.D., a former Postdoctoral Fellow with Wood, who now is Assistant Professor at University of California Santa Cruz. The study was funded by Harvard's Wyss Institute, the Defense Advanced Research Project Agency (DARPA), and a National Defense Science and Engineering Graduate Fellowship.

www.seas.harvard.edu







UNIVERSITY OF VIRGINIA MULTIDISCIPLINARY ENGINEERING TEAM DESIGNS NEW TECHNOLOGY FOR SMART MATERIALS

University of Virginia mechanical engineers and materials scientists, in collaboration with materials scientists at Penn State, the University of Maryland and the National Institute of Standards and Technology, have invented a "switching effect" for thermal conductivity and mechanical properties that can be incorporated into the fabrication of materials including textiles and garments.

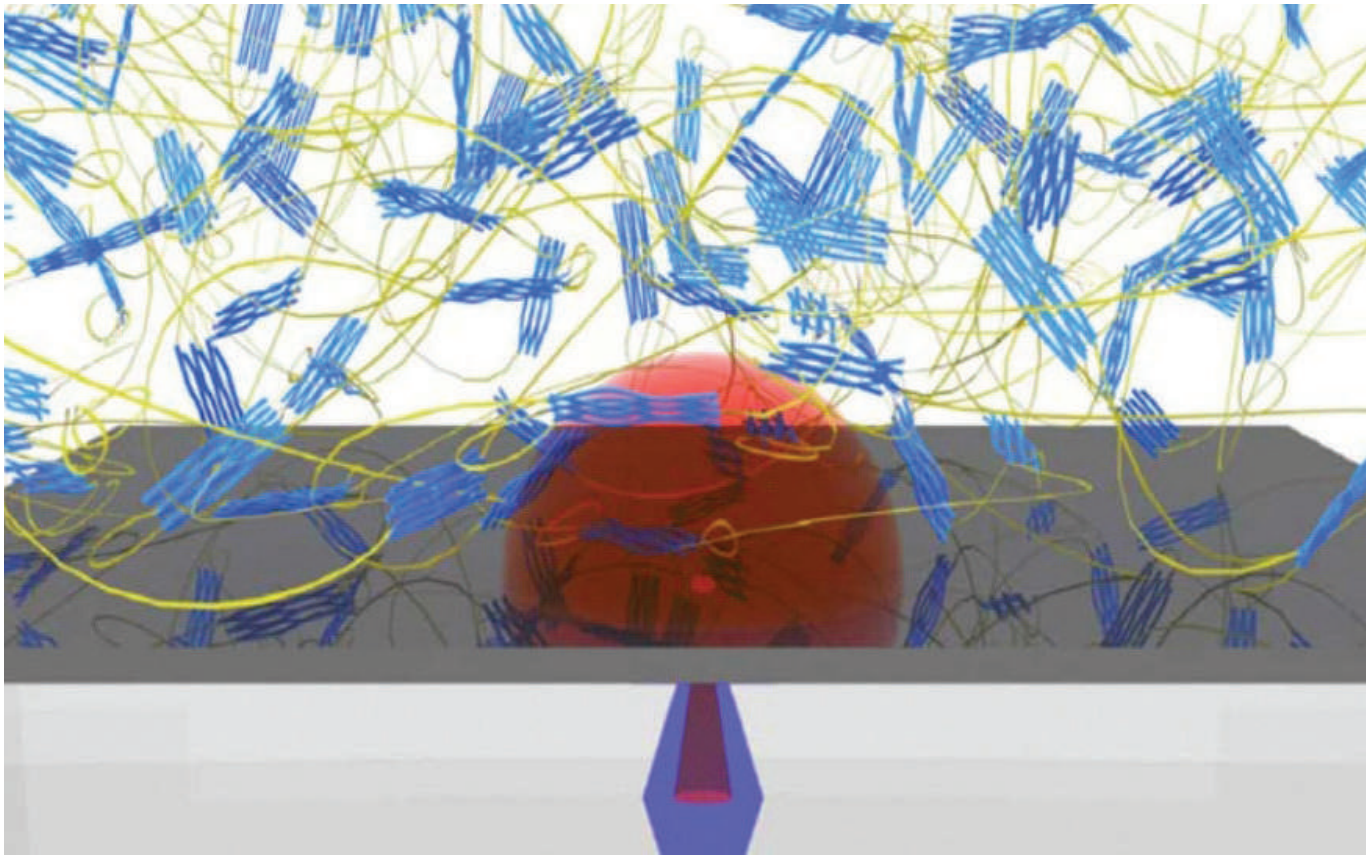
Using heat transport principles combined with a biopolymer inspired by squid ring teeth, the team studied a material that can dynamically regulate its thermal properties – switching back and forth between insulating and cooling - based on the amount of water that is present.

The invention holds great promise for all sorts of new devices and materials with the ability to regulate temperature and heat flow on demand, including the "smart" fabrics.

"The switching effect of thermal conductivity would be ideal for many applications, including athletics," said John Tomko, a Ph.D. candidate in UVA's Department of Materials Science & Engineering and lead author of an article about the invention published this week in Nature Nanotechnology. "This material has the potential to revolutionize active wear, unleashing the possibility of clothing that can dynamically respond to body heat and regulate temperature.

For example, the biopolymer has a low thermal conductivity while dry, essentially storing body heat and keeping the athlete (and his or her muscles!) warm while not active. As soon as the wearer begins to sweat, the material could become hydrated and instantly increase its thermal conductivity, allowing this body heat to escape through the material and cool the athlete down. When the person is done training and the sweat has evaporated, the material could go back to an insulative state and keep the wearer warm again.

"And while it may sound highly specialized and only for professional athletes, it would be equally useful from an apparel company perspective," said Tomko, whose research is being conducted as part of the ExSite Group led by Professor Patrick Hopkins of UVA's departments of Mechanical & Aerospace Engineering, Materials Science & Engineering and Physics.



www.engineering.virginia.edu

The garments made using this technology would be a step above what is available on the market today because of the materials' extremely wide range of technical capabilities. For example, polar fleece generally requires different weights to accommodate different combinations of temperatures and activity levels. The new material could accommodate the whole gamut of athletic scenarios within one garment. Fleece is considered breathable, a passive state, but the biopolymer material would actively conduct heat out of the garment.

"While realizing thermally and mechanically smart fabrics is one major advance of this work, the ability to provide such large and reversible modification in the thermal conductivity of a material `on-demand' has potential game-changing applications," said Hopkins, Tomko's Ph.D. advisor and co-lead on this research effort with Professor Melik Demirel at Penn State. "The thermal conductivity of materials is typically assumed to be a static, intrinsic property of a material. What we have shown is that you can 'switch' the thermal conductivity of a material in a similar way that you would turn on and off a light bulb via a switch on the wall, only instead of using electricity, we can use water to create this switch. This will allow for dynamic and controllable ways to regulate the temperature and/or heat flow of materials and devices.

"The magnitude of this on/off thermal conductivity ratio is large enough where we can now envision applications including not only smart fabrics, but also more efficient recycling of wasted heat to create electricity, making self-thermally regulating electrical devices, or creating new avenues for wind- and hydropower production."

The process of creating "programmable" materials could be good news for manufacturers and the environment. Usually textile companies have to rely on different types of fibers and different manufacturing processes to create clothing with varying attributes, but the tuneable aspect of these materials means that insulating and cooling attributes can be created from the same process. This could lead to lower manufacturing costs and reduced carbon emissions.

Squid ring teeth, which make programmable materials possible, are an inspiring new avenue of scientific research that were first discovered at Penn State. These biomaterials contain unique properties such as strength, self-healing and biocompatibility, making them exceptionally suitable for programming at the molecular level, in this case for thermal regulation. This is more good news for the environment, since they can be extracted from the suction cups of squids or can be synthetically produced via industrial fermentation, both sustainable resources.

Tomko's and Hopkins' collaborators on the research are Abdon Pena-Francesch, former Ph.D. student at Penn State and now a von Humboldt Fellow at the Max Planck Institute in Stuttgart, Germany; Huihun Jung, a doctoral candidate in engineering science and mechanics at Penn State; Madhusudan Tyagi a researcher with the University of Maryland and the National Institute of Standards and Technology; Benjamin D. Allen, assistant research professor of biochemistry and molecular biology at Penn State; and Demirel, professor of engineering science and mechanics and director, Center for Research on Advanced Fiber Technologies at Penn State.

"The beauty and unique power of neutron scattering helped us solve the puzzle of how tandem repeat units really influence the observed thermal conductivity in hydrated samples, as heavy water simply becomes 'invisible' to neutrons! We found that the increased and 'altered' dynamics of amorphous strands were, actually, responsible for this increased thermal conductivity in hydrated samples," said the University of Maryland's Tyagi. "I believe this research is going to change how we study thermal properties of soft matter, particularly proteins and polymers, using neutrons as typically hard condensed matter is where most of the work is done in this regard."

Tomko and fellow UVA Engineering researchers, along with graduate students from UVA's Darden School of Business, won first place in a Patagonia outdoor apparel company competition this spring to determine the best ideas for attaining carbon neutrality. Raw materials production is responsible for about 80 percent of Patagonia's total carbon emissions, largely attributed to the production of polyester fabrics derived from fossil fuels. The UVA team proposed that the company transition to biopolymer textiles, which can be engineered solely from renewable resources. The new materials would look and function better than polyester and wool alternatives without relying on fossil fuel.

PolyU develops novel self-fitting scaffold for bone regeneration

Opening Minds ▪ Shaping the Future

www.polyu.edu.hk

Researchers from The Hong Kong Polytechnic University (PolyU) have designed and fabricated a high performing self-fitting bone scaffold by combining a shape memory foam and hydroxyapatite (the principal mineral component of bone tissue). It can be safely and conveniently implanted into bone defects and induce bone regeneration, thus enhancing the recovery of bone injuries and fractures. Up to date, no bone scaffold in commercial market possesses such shape memory self-fitting effect.

Despite the regenerative capacity of bone, for large bone defects due to bone tumor resections or severe fractures, bone grafting surgeries (autografts or allografts) are always required for orchestrating bone regeneration. With bone fracture becoming a rising worldwide health concern, especially for ageing societies, how to improve grafting process or induce bone regeneration effectively, thus help relieve suffering and reduce society's medical expenses, have become a rising challenge for scientists. Taking hip fractures from osteoporosis as an example, a latest study[1] projected that the number of annual new cases in Hong Kong, of 9,590 this year, will be tripled by 2050; while Malaysia and Singapore will reach 3.5 times during the period.

One promising field explored by tissue engineering scientists is to develop a bone scaffold which can act as template for speedy tissue regeneration, and can be used in minimally invasive operation so as to reduce hospitalization stay and infection risk. The novel scaffold developed by the team of PolyU researchers, led by Professor Hu Jinlian (Principal Investigator) and Dr Xie Ruiqi from the Institute of Textiles and Clothing, and Dr Guo Xia from the Department of Rehabilitation Sciences,has offered promising breakthrough. The team has close collaboration with Sichuan University in cell culture and animal modelling for the research.

Characteristics of PolyU's novel bone scaffold

The novel scaffold[2] made of shape memory polyurethane foam (a type of plastic material) and hydroxyapatite (HA) nano-particles is characterized by its remarkable self-fitting effect. As a shape memory material, the scaffold can be compacted at 0°C, implanted with compact shape at room temperature, and recovered to its original shape completely at 40°C. The scaffold thus can fill up the irregular bone defects perfectly. The transitional temperatures, with range close to human body's physiological temperatures, also enhance the feasibility of using the scaffold in minimally invasive surgery.

The self-fitting scaffold possesses a highly porous structure with interconnected pores to allow cells migration and formation of new tissues. The average pore size of the scaffold is 670 μm (diameter of a human hair is around 100 μm), which is close to that of trabecular bone (the inner layer of bone) and thus mimics the actual in vivo microenvironment. The optimal structure of the scaffold is around 60% of space voids.

The mechanical strength of the scaffold can neither be too low (may cause deformation or crash) nor too high (may reduce the density of surrounding bone tissue). The compressive strength of the PolyU developed self-fitting scaffold is designed at 13.6MPa (Megapascal), which is comparable to that of trabecular bone. Laboratory tests also show that the self-fitting scaffold is biocompatible and has no cytotoxicity.

Animal study on bone regeneration

"Our research team further examined the performance of the self-fitting scaffold in facilitating bone regeneration through a rabbit femoral defect study. The results show that our scaffold has overcome the disadvantages of traditional polymer scaffolds, and has great potential for bone regeneration," said Professor Hu.

In the animal study, 18 rabbits with a femoral bone defect in each knee, making up a total of 36 lesions, were divided into experimental group and control group.

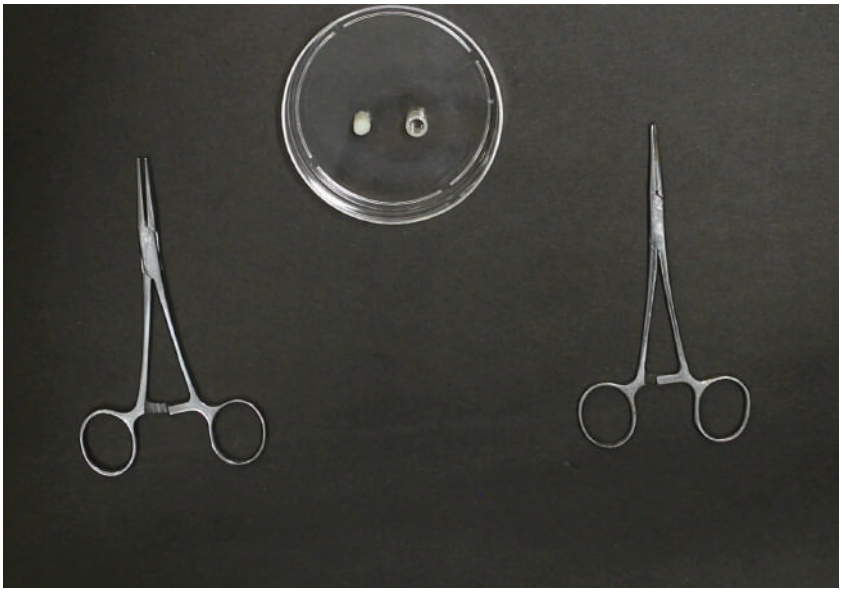
The bone defects of the rabbits in the experimental group were implanted with self-fitting scaffolds (with original size around 5% larger than the bone defects) compacted to around 50% of their original size. After triggering with 40°C saline, the scaffolds expanded from the compacted shape to fill the defect in 60 seconds. The bone defects in the control group were left unfilled.

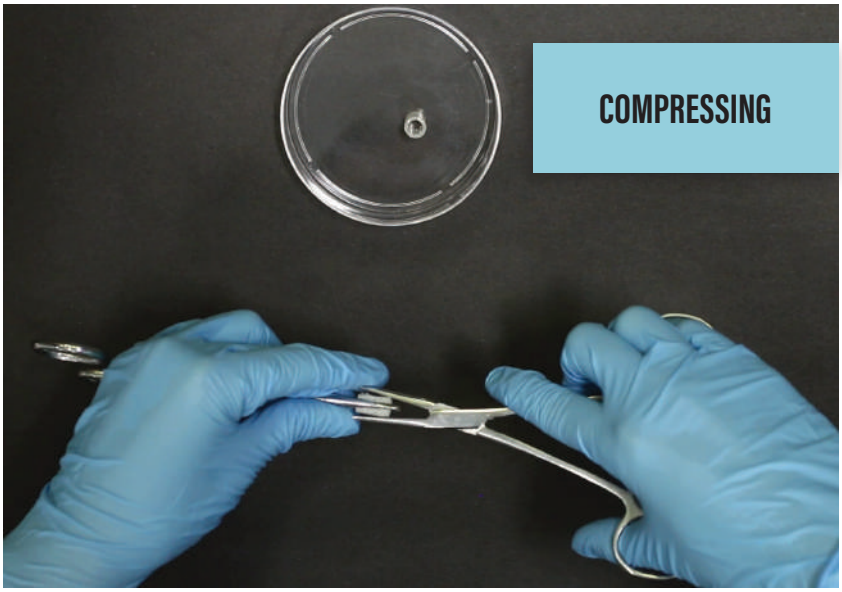
Twelve weeks after the surgery, the experimental group displayed faster bone tissue ingrowth in volume. There was 46% of bone ingrowth, or the proportion of total defects being repaired. On the contrary, the control group had only 24%.

The self-fitting scaffold has been proved inducing the formation of osteoblasts and blood vessels, which are responsible for the synthesis of bone tissue. In the experimental group, 12 weeks after the surgery, the number of neovascular buds grew on the scaffolds was 4 times of that in the control group. Moreover, 5% of bone surface was covered by osteoblasts in the experimental group whereas the control group recorded almost no osteoblast.

In conclusion, the novel shape memory scaffold developed by PolyU has the advantages of:

- being implanted via minimally invasive operation;
- self-adaption and self-fitting;
- optimal structure for bone remodeling;
- full biocompatibility;
- optimal mechanical properties.






avantex
PARIS
High Technology + Fashion Industry
11 – 14 February 2019
Paris Le Bourget
France
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messe frankfurt

avantex PARIS

an obligatory event for every fashion tech enthusiast

Avantex is the 1st international trade show launched in 2015 and dedicated to innovation in the textile and fashion industry. The 2019 edition takes place in Paris on the 11th – 14th February. Why should you attend?

The event is full of attractions and gives you a great chance to meet with experts from around the world. Avantex Paris was founded to help visitors create wider networks and open new markets. The event enjoys its popularity among startups, brands, designers, garment and textiles manufacturers, retailers, engineers, agencies, studios, institutes & laboratories and universities. You can checkout a wide range of fascinating ventures in innovative fabrics, materials, components, products, and services. The event covers the topic of the fashion industry from fibers to finished products and offers numerous events. Catwalks put Fashion Tech on stage by bringing innovations to life. Conferences with a varied meeting program gather experts and strong figures of the industry. Avantex Fashion Pitch - a federalizing event rewards the most innovative start-ups in high-tech fashion. Organizers also plan a large number of workshops and many other attractions. During the event, you can learn more about innovative fibers and textiles, conductive inks, new printing hand textile embroidery technics, wearables, software, prototyping tools and new solutions for smart retail. Your presence at the event will be an absolutely invaluable experience that can enrich your industry understanding and show you the vision of forward-looking fashion. All the latest discoveries and trends in the fashion-textile industry in one place!

The majority of visitors come from France, Germany, Italy and Great Britain. Exhibitors from Europe and Asia are selected by a special committee separated to the following departments:

MATERIALS & COMPONENTS | PROTOTYPE STUDIO | CLOTHING & ACCESSORIES | SMART RETAIL | AVANTPRINT

AVANTEX is more than just a professional textile fair trade. It is a must for everyone who wants to keep up-to-date with the latest knowledge and trends in the fashion tech industry. We warmly invite you to take part in the event. See you at Avantex!

Source: ***avantex-paris.fr.messefrankfurt.com***

BASALT.TODAY

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Basalt.Today – независимое онлайн-издание, посвящённое производству и применению одного из прогрессивных современных конструкционных материалов – базальтового волокна и композитов на его основе. Мы рассказываем обо всех этапах производства базальтового волокна, начиная геологическими изысканиями и заканчивая методами тестирования и проектирования композитов, чтобы создать комфортное пространство для поиска партнёров по бизнесу или научной деятельности и совершенствования производства.

Basalt.Today is an independent online media platform coveringthe manufacturing processes and application fields of a contemporary advanced structural material, that is basalt fiber and also basalt fiber based composites. We cover all basalt fiber production stages, starting from geological surveys and finishing with testing and designing methods for composite materials production in order to create a convenient room for establishing business links, conducting research activity and improving manufacturing processes.

Modern prospects of basalt composite application.

Author: Irina Karpesjo, Chief Editor of Basalt.Today, English translation: Alexandra Chernykh

Fiber-reinforced composite materials have almost emerged as traditional solutions for a number of industries and the refusal of their use is simply inconceivable. Lightweight and strong composites are helping to tackle the issues of durability and safety of structures, reducing the weight of vehicles. As a result of their application, energy consumption is reduced, logistics is simplified, costs are declined.

Meanwhile, strict standards for energy saving, greenhouse gas emissions reduction and environmental care in the European Union and the US, are steadily growing. And the expansion of the application of composite materials fosters growth of requirements for the components from which they are produced. This compels the developers to seek alternative solutions using these types of fibers, the production, operation and disposal of which will have minimal impact on the climate and nature of the Earth.

Basalt fiber as an eco-friendly and recyclable material with high physical, chemical and dielectric properties has an increased emphasis from experts from almost all sectors of consumption of composites. It is hailed as one of the perspective materials enabling to create modern composites with improved properties.

The concern is the fact that existing production facilities cannot ensure basalt fiber to all consumers who could potentially use it.

Latterly, countries where basalt deposits have been discovered have defined their sphere of interest in their suitability for the production of continuous basalt fibers. Mineralogical compositions of even previously discovered but not developed deposits are analyzed. Work on the development of technologies and equipment was revived, making it possible to minimize the cost of production of the fiber itself and composites based on it. Basalt composite themes have become present on the agenda of almost all international composite events.

Several significant events take place in Poland, for instance, the Kompozyt-Expo in Krakow or the International Composite Forum in Nova Ruda, in which the President of the Union for the development of the basalt industry Andrey Nikitin communicated with the leadership of The Polish composite valley and the Raw materials cluster on the implementation of a number of planned innovative projects. The consideration has been given to the wide application of products on the basis of continuous basalt fiber: lighting supports, noise screens and fences, rebar and fiber for reinforcement of concrete structures, the prospect of using basalt composites in shipbuilding.

EVENTS CALENDAR

THE MOST IMPORTANT EVENTS FROM THE TECHNICAL TEXTILE INDUSTRY 2019

Heimtextil

JANUARY 08 - 11

FRANKFURT

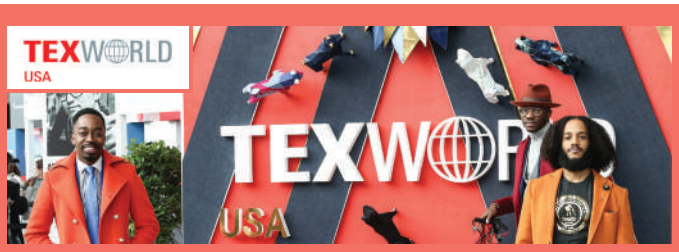
Heimtextil is the biggest international trade fair for home and contract textiles, and will next be held in Frankfurt am Main. The first trade fair of the year for its sector, it is a climate and trend barometer for the new business year.

London Textile Fair

JANUARY 09 - 10

LONDON

The London Textile Fair is an exhibition for suppliers, buyers, distributors, manufacturers and for fabric and textile manufacturers. It is an excellent platform to introduce new products, establish business contacts and meet new and existing clients.



TEXWORLD

JANUARY 21 - 23

NEW YORK CITY

Texworld USA is an international business platform and can't-miss industry event that offers a wide product range covering the entire fabric spectrum – season to season attendees discover textiles of innovative structures, material mixes, and surprising color palettes.

Avantex

FEBRUARY 11 - 14

PARIS

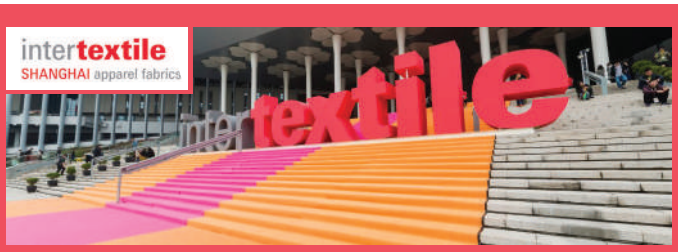
Avantex is a professional trade fair for fashion and high-tech experts. The event presents a wide range of interesting ventures into innovative fabrics, materials, components, products, and services. Avantex Paris is an event that creates the fashion of tomorrow and opens new markets!

Apparel Sourcing Paris

FEBRUARY 11 - 14

PARIS

Apparel Sourcing Paris is the biggest garment sourcing show in Europe with more than 600 exhibitors from all over the world. It offers a wide and consistent sourcing for clothing: knitwear, casualwear, sportswear, outerwear and corporate wear.



Intertextile Shanghai

MARCH 12 - 14

SHANGHAI

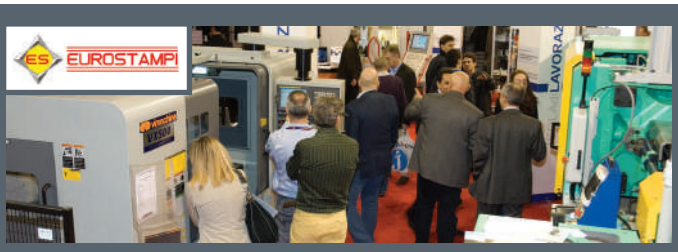
Intertextile Shanghai Apparel Fabrics is a comprehensive platform to showcase your supreme apparel fabrics and accessories. This fair is one of the most important events for the worldwide textile market, and the strong business results shown in previous editions once again validate this.

Russian Textile Week

MARCH 19 - 22

MOSCOW

Russian Textile Weeks is Russia's largest congress and exhibition event devoted to textile and light industry. It is the traditional business platform for the meeting of heads of Russian and foreign enterprises of textile and light industry of domestic and foreign production. It consists of: Inlegmash, Techtextil Russia and Intertkan.



Eurostampi

MARCH 28 - 30

PARMA

Eurostampi is an international exhibition for molds, presses and injection molding machines. Numerous exhibitors worldwide are represented at this fair to show the latest equipment, processing techniques and applications. The Eurostampi is an important platform for exhibitors and users in the industry.

Baltic Fashion & Textile

APRIL 26 - 28

RIGA

The Baltic Fashion & Textile is the biggest Baltic trade fair for the textile and leather industry. It takes place in Riga, Latvia. This trade fair connects textile and fashion business from the West and the East, in particular between Nordic and CIS countries.

Techtextil & Texprocess

MAY 14 - 17

FRANKFURT

Techtextil Frankfurt is a leading international exhibition for technical textiles and nonwovens. It assembles all vertical aspects of the technical textile industry. From research and development, through raw materials and production processes and finally ending in conversion, further treatment and recycling.

ITMA

JUNE 20 - 26

BARCELONA

The international textile machinery exhibition ITMA has become a leading trade fair of the industry over the past years. Decision makers and entrepreneurs who are active in the textile processing industry, but also students, can get in depth and comprehensive information by visiting the fair.