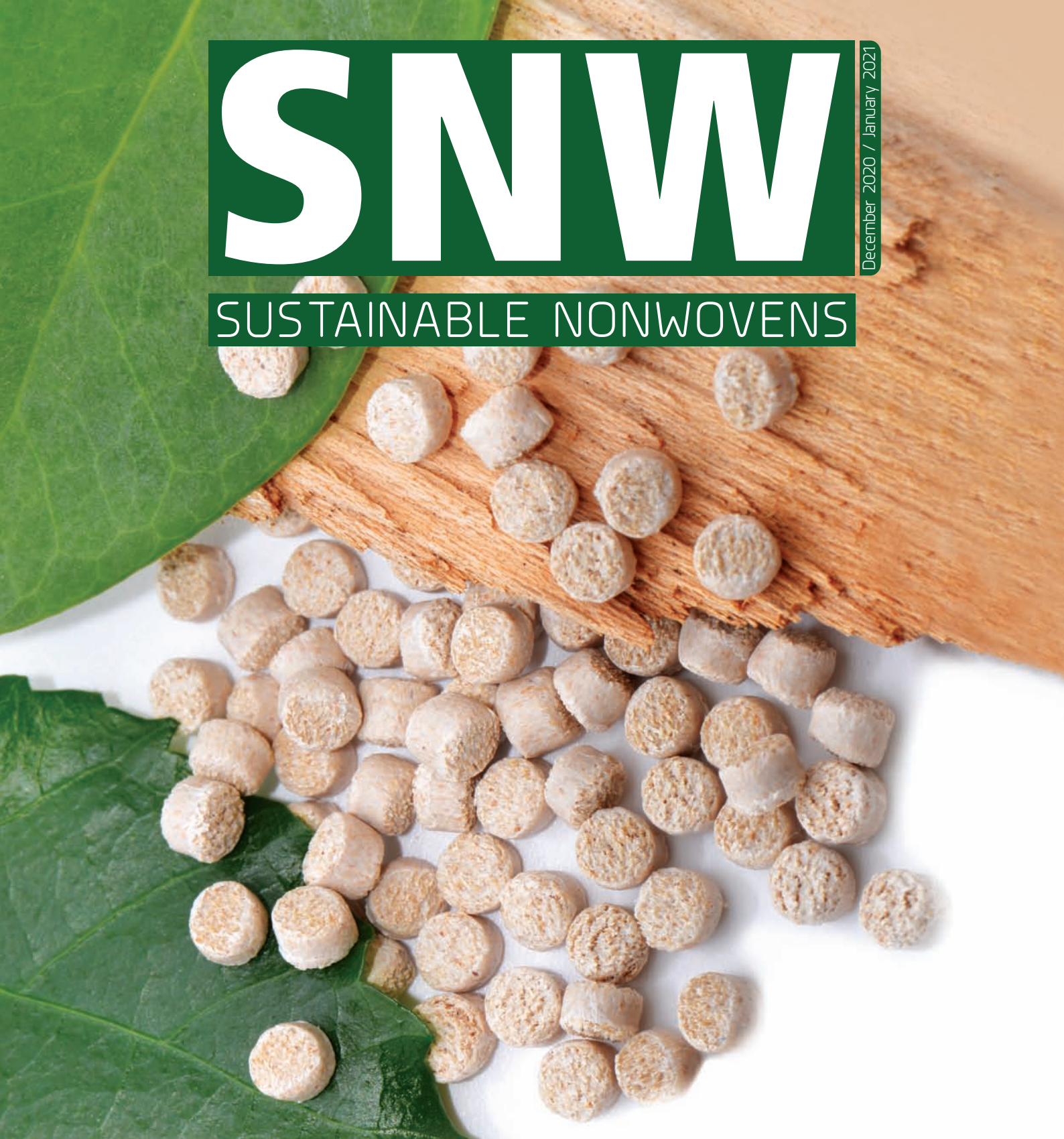
SNW
SUSTAINABLE NONWOVENS
December 2020 / January 2021



Material gain

Sustainable raw materials are a vital alternative to fossil-based plastics

2020 in review
A nonwovens year in quotes

Boom time
The AHP market has soared in 2020

Design for life
Circularity in the nonwovens industry

Technical Innovation and Industry Best Practice

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Unimaginable, but fact

There's no escaping the overarching theme of 2020 and its impact on the nonwovens industry.

Throughout the year, the team here at *Sustainable Nonwovens* has worked tirelessly to bring you the latest news, analysis and online events examining how the global coronavirus pandemic has affected the nonwovens supply chain and how our industry has responded to supply the world with essential PPE.

To put this in perspective, one only has to look at the staggering figures in Europe alone and for that matter, just facemasks - one single element of the wide ranging PPE product offering.

The figures show that the European production of single-use facemasks was ten billion units in 2019. In 2020 it will be 130 billion units – all disposable plastic-based nonwoven products.

At the same time, European meltblown fabric production capacity was just 66 tons in January this year - by November this will have risen to 1,320 tons.

To quote Bernd Kunze of technology supplier Reifenhäuser Reicofil (see page 21): "Think of the number of face masks needed per day in a world of 7.5 billion people, then half it. For every one million masks, put on one metre of meltblown beam. Divide this number by two and subtract the systems already delivered. Congratulations, you have found out the total number of meltblown lines needed. It's unimaginable, but fact."

With this increase of disposable plastic-based nonwoven products being produced, it seems more essential than ever that as an industry, we look to long-term sustainable solutions.

In March, at the start of pandemic and before the full seriousness was known, the European Commission published the Circular Economy Action Plan, a package of initiatives that aims to double the EU's use of recycled material this decade, increase GDP and contribute to the bloc's climate agenda.

The onset of the pandemic meant that the full programme has not yet been rolled out. In the meantime, however, the European Commission has further developed a number of actions to address the climate crisis along with the challenges faced by the Covid emergency (see page 22).

As a planet, we are currently using three times the natural resources that the planet can naturally give, which creates significant biodiversity stress. Furthermore, by 2050, the estimates are that there will be an increase of 70% in waste generated; we are not recycling anywhere near the rate required and only 12% of the materials used by industry across the EU are sourced from recycled materials.

There is a recovery plan on the table from the EU but a raft of new developments show how industry and society itself is working towards a greener future. As we see in this issue (page 39), there is an increasing demand for more environmentally friendly products that has led to a corresponding demand for new, sustainably produced raw materials.

Raw materials made from a biological feedstock have been identified as a renewable and more sustainable alternative to fossil-based plastics. Unlike the vast majority of fossil-based polymers, many such biopolymers are biodegradable, which could help provide a solution to the dizzying escalation in plastic waste seen across much of the world over the last 12 months.

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Every issue

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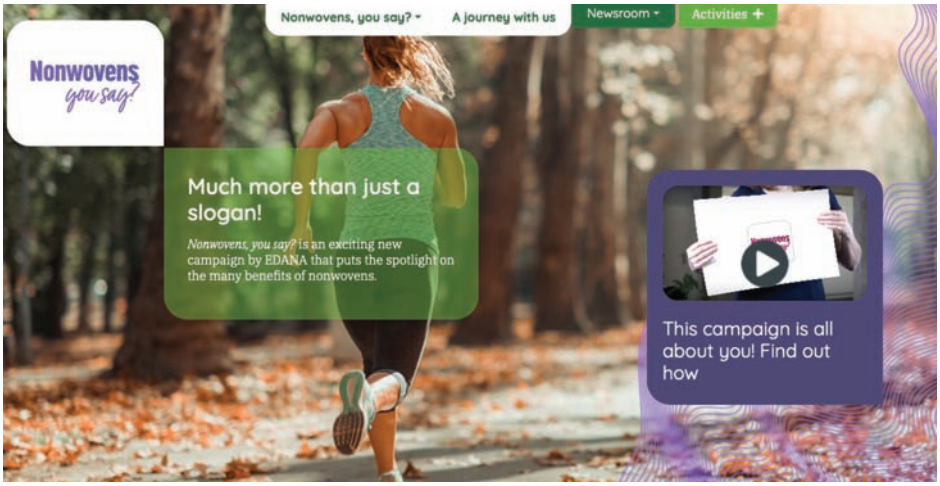
EDANA launches 'Nonwovens, you say?' campaign



BRUSSELS - EDANA has launched a new, far reaching and ambitious communications campaign aimed at raising awareness of nonwovens among key target audiences.

Highlighting the unique benefits of nonwovens and the broad range of innovations aimed at ensuring the sustainable growth of the sector, the Nonwovens, you say? initiative was devised with widespread industry support and participation.

"The #NonwovensYouSay campaign is all about creating awareness of the world of Nonwovens, a fascinating industry that creates products and materials to make the daily life more comfortable and convenient," EDANA says. "What do running shoes, baby diapers, surgical masks, roads, and air filters all have in common? Surprise! It's nonwovens. Although often hiding in plain sight, we use nonwovens both day and night and from the moment we are born to the day that we die.

"Thanks to their softness, breathability, and exceptional absorption, nonwovens are today's unsung heroes of comfort and convenience. But nonwovens aren't just an essential material in many everyday products, they're also at the vanguard of sustainability and innovation. Clearly, the nonwoven sector is full of surprises – and Nonwovens, you say? intends to unveil them all."

Over the course of the next 19 months, the campaign will see EDANA roll out a range of creative activities through our dedicated website, social media platforms, videos, infographics, interviews, games and events.

The three core topics for its messaging are:

- **Raising the Bar on Sustainability** - While drafting a sustainability report and vision statement, EDANA conducted a sustainability survey of its members. Among the findings was that a substantial number of its members communicate about their sustainability performance publicly through their websites and dedicated sustainability reports. Several EDANA members even go so far as actively using Environmental Product Declarations (EPD) to communicate about the environmental impact of their products.
- **Defining the Future on Innovation** - Although the nonwovens industry has been around for over 50 years, the full-scale industrialization of nonwovens manufacturing didn't take off until the 1980s. Since then, the nonwovens industry has been driven by a passion for innovation, leveraging the latest technologies to constantly advance the state-of-the-art. A prime example of this is the development of web forming and web consolidation technologies.
- **Benefits of nonwovens on daily life** - Although they're often hiding in plain sight, nonwovens really are everywhere. From hygiene products to clothing and even automobiles, nonwovens play an essential part in many everyday items. Here we highlight some of the many ways we all use nonwovens each and every day.

Over the course of the next 19 months, EDANA will roll out a range of creative activities through its dedicated website, social media platforms, videos, infographics, interviews, games and events.

For more details go to: *https://nonwovensyousay.eu*

Innovatec invests in new Reicofil Bico spunbond line

TROISDORF - Nonwovens manufacturer Innovatec, a major supplier of meltblown fabrics, has invested in a new Reicofil Bico spunbond line.

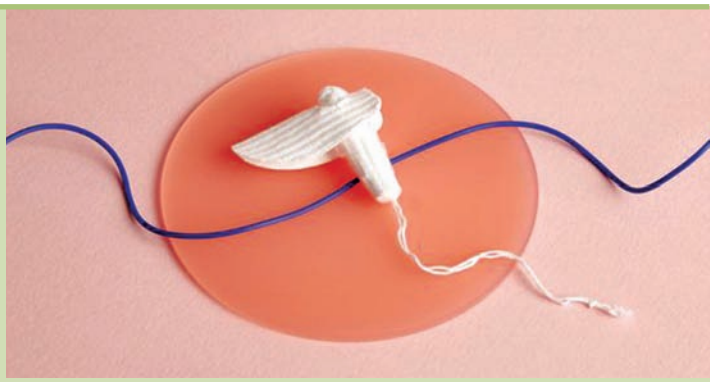
The new line, which is expected to be operational by July 2021, will expand the company's production of technical spunbond fabrics by 5,500 metric tons.

After also increasing meltblown capacities by around 5,000 metric tons in 2020, the Troisdorf-based firm has already invested in the expansion of its spunbond fabric business with a new line coming on stream earlier this year. This capacity will now be supplemented with the Reicofil BiCo technology from Reifenhauser.

"With this consequent focus of innovative strength and highest quality standards, Innovatec has become the market leader in the field of meltblown fabrics," said Innovatec owner Christian Kloeber. "We want to pursue this path in the market of spunbond fabrics by sustainably expanding our growth."

Innovatec will house the new line in a new production hall which is currently under construction in Troisdorf. The facility will also be sizable enough to house further lines, ensuring the company has capacity for significant further growth. Innovatec is initially concentrating on the production of technical spunbond using RF4 BiCo technology with a production width of 3.2 metres.

Callaly secures funding to further sustainable development



LONDON - Callaly is to receive a £173,000 grand from Innovate UK's Sustainable Innovate Fund to further develop sustainable elements for its award-winning Tampliner - an organic cotton tampon with a built-in mini-liner.

The Tampliner sees a regular tampon attached to the mini pantyliner with a patented virtual applicator for clean insertion, removal and protection against leaks. It was developed by gynecologist Alex Hooi after her research revealed that while the average woman will use around 11,000 tampons in her lifetime – over a quarter of them claim to be unsatisfied their choice of product.

With the help of garment technologist Ewa Radziwon, Hooi set about designing an alternative to products currently on the market that provided the wearer with extra security without the need for a separate pad.

Over the space of five years, the duo tested and perfected different variations of the product, before arriving at the tampon-liner hybrid. Both components are made from 100 per cent organic cotton, and are free from any dioxins, perfumes or dyes. An applicator made of medical grade breathable membrane joins the tampon and liner together. This membrane is worn inside the body and helps to keep the Tampliner in position. It can also be used to wrap the tampon upon removal.

Innovate UK, as part of UK Research and Innovation, is investing up to £191 million to fund single and collaborative research and development projects as part of the Sustainable Innovation Fund over the next two years. The aim of these competitions is to help all sectors of the UK rebuild after the effects of COVID-19.

Currently all components of the tampliner are biodegradable, with the exemption of one item; the virtual applicator. This cylindrical sheath is key to the innovative tampliner, providing a breathable ultra-thin membrane that secures the tampon to the mini-liner component of the product. The tampliner sheath is currently made from a non-sustainable polymer but with this Innovate UK funding, Callaly can now investigate and test a number of possible biodegradable formulations to develop a plastic-free alternative.

This research & development will be supported by experts in sustainable plastics from Imperial College London and experts in nonwovens engineering from Leeds based Nonwovens Innovation & Research Institute (NIRI).

Thang Vo-Ta, Founder and CEO of Callaly commented: "We are thrilled to receive this grant from Innovate UK to test and develop a new biodegradable sheath for the tampliner that we can integrate into our bespoke manufacturing and production process. As a B Corp, we always hold ourselves to the highest standards and to be able to achieve a fully-biodegradable tampliner would be a significant breakthrough for greater sustainability in the period care market, not to mention benefits for further applications in medical treatment and clinical research."

Dr. Romain from Imperial College London's Department of Chemistry who, along with Professor Britovsek was commissioned through Imperial Consultants to provide their independent expertise on the project said: "Prof. Britovsek and I are excited to be working with Callaly to help identify strategies to improve the sustainability of their innovative period care products".

Innovate UK Executive Chair Dr Ian Campbell said: "In these difficult times we have seen the best of British business innovation. The pandemic is not just a health emergency but one that impacts society and the economy.

"Callaly, along with every initiative Innovate UK has supported through this fund, is an important step forward in driving sustainable economic development. Each one is also helping to realise the ambitions of hard-working people."

Cash injection to drive Dyper expansion

SCOTTSDALE - Subscription-based diaper service Dyper has received a US$20 million investment from The Craftory, a private equity firm which specialises in sustainable and ethical businesses.

The funding will be used primarily to support Dyper's expansion in the US and help raise its profile in the competitive AHP market. Existing investor HCAP is also participating in the fund raising.

Dyper is a subscription-based diaper service that delivers bamboo-based compostable diapers directly to customer's doorstep each month. They are free from chlorine, latex, alcohol, PVC, lotions, TBT or Phthalates and unprinted, unscented, soft to the touch, yet are said to be extremely durable and highly absorbent.

The packaging also made from oxo-degradable materials, while Dyper purchases carbon offsets that actively promote reforestation for each delivery.

An estimated 27.4 billion disposable diapers are used annually in the US, resulting in 3.4 million tons of used diapers added to landfills yearly. Scientists estimate a discarded disposable diaper containing plastic takes approximately 450 years to decompose. This makes diapers as potentially environmentally dangerous as single use plastic bags with similar risks of micro plastics entering the environment.

Dyper subscribers can also opt-in to the first of its kind Redyper program, which uses specially engineered UN Haz Mat shipping boxes to return soiled diapers for composting. The waste composted through this program is used in specialized applications, such as for vegetation in highway medians.

"Dyper's mission goes far beyond selling diapers, and similarly, The Craftory goes far beyond capital," said Sergio Radovic, CEO and founder of Dyper. "We're thrilled to find a partner dedicated to taking on industry giants to affect real change, and look forward to scaling our mission of helping babies, parents and our planet, one diaper at a time."

"Parenting a newborn can be stressful and exhausting - eco-guilt is something you shouldn't have to worry about when your hands are full with an incontinent child," added Jamie Swango, Craft Partner Digital Amplification & Platforms at The Craftory. "Dyper diapers represent only upside: no need to change consumer behaviour, superior product performance, sustainability built in. These are the diapers progressive moms and dads have been waiting for."

In addition to PP nonwovens, this plant will also produce polyester and PLA nonwovens. Moreover, various BiCo variations can be produced, significantly broadening Innovatec's product portfolio.

BiCo technology offers a wide range of technical possibilities, especially when it comes to enhancing the strength of the nonwovens. Using this line, Innovatec will be able to use lighter basis weights which in turn can help reduce the amount of natural resources used.

In addition to the high product quality and higher process stability, Innovatec said it also was also impressed with the high-energy efficiency levels of the Reicofil line.

"With this new spunbond plant we will increase our output of nonwovens by around 5,500 metric tons per year. At the same time, we are increasingly focusing on sustainable production by using granulates based on renewable raw materials or recycled plastics. Compared to the market, we will achieve a very high energy efficiency," added managing director Daniel Krumme. "In order to deliver on our quality promises, we are only investing in state-of-the-art units. We successfully applied this strategy concerning our meltblown fabrics and we will continue along this path."

Under the brand name InnovaSpun, Innovatec already offers tailor-made solutions for spunbond fabrics for a range of applications in the construction, filtration and automotive industries.

Fitesa unveils global expansion program

PORTO ALEGRE - Nonwovens manufacturer Fitesa has outlined a series of investments in new lines and upgrades across its international portfolio that will increase the company's capacity by 55,000 million tonnes per year.

The company has confirmed that Latin America will lead the capacity expansion with a new multibeam Reicofil 5 line to be installed in Cosmópolis, Brazil. Construction is in an advanced stage and the line will arrive in July 2021. Once this new line is installed the site will become the most advanced spunmelt nonwovens production location in the region, the company said.

An upgraded and redesigned meltblown line began operation three months ago in Gravataí, Brazil, one and now produces N95 meltblown grades as part of the company's help in the fight against COVID19. In addition to the above-mentioned line, an additional state of the art Reicofil meltblown equipment is being assembled to start before the end of 2020.

The total investment in the region will increase Fitesa's production capacity by 30,000 million tonnes per year and triple the company's pure meltblown supply availability, fulfilling the rising demand from the healthcare and hygiene markets.

Stand-alone meltblown capacity is also being added in other regions, with new machine start-ups coming on stream in November 2020 at the plant in Trezzano Rosa, Italy, before Christmas 2020 in Peine, Germany, and in January 2021 in Simpsonville, USA.

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LEED Platinum for new hemp plant

GEORGETOWN – JRA Architects has achieved the first successful LEED Platinum certification in Kentucky for its design of the new Ecofibre hemp processing facility.

An exacting design, build and certification process that would normally take upwards of three years was completed in just 18 months, despite some pandemic-related delays in material deliveries.

"This facility breaks new ground in so many respects, but it's proof that modern design principles, strong teamwork and a willingness to innovate will always carry the day," said Marty Merkel, associate at JRA Architects. "It takes a great team to complete a project like this ahead of schedule, in the midst of a global pandemic."

Kentucky has warmly embraced hemp production and processing on the heels of its nationwide approval in the 2018 farm bill.

"Kentucky has exceeded our expectations in every respect, from governmental support for economic development to professional experts like JRA and their teammates who guided us through the entire process," said Eric Wang, CEO of Ecofibre Australia-headquartered Ecofibre. "This LEED Platinum facility is a great affirmation of our company's desire to do things the right way economically and environmentally every time."

LEED stands for Leadership in Energy and Environmental Design, an internationally recognized green building certification system providing third-party verification that a building was designed and built sustainably with low environmental impact.

In pursuit of that certification, the Ecofibre facility's design incorporates a wide array of resource-efficient technologies, ranging from solar panels and nearly 70 light-channeling solar tubes to geothermal and water capture for flushing in the bathrooms. A rigorous building commissioning process led by Paladin Inc., served to further improve efficiency.

"The process of completing any LEED certification is incredibly complex and preparing a building owner to reap its benefits over time requires precise documentation and operating policies," said Candice Rogers, president of Lexington-based Paladin "Done right, LEED becomes a lifestyle of its own, with the upsides of sustainability enjoyed for the long haul."

The building also won points on the detailed LEED checklist by incorporating an array of fabrics grown, processed and woven on the premises into its various finishes.

These lines will complement Fitesa's product portfolio in Europe and North America with nonwovens for high quality filters for surgical facemasks and respirators.

In addition to these investments, Fitesa is also adding projects to increase production volumes, modernize its existing assets and enhance the flexibility of its current asset base.

As a result, in Q2 and Q3 2021 another 20,000 million tonnes per year of spunmelt capacity, evenly split between the USA and Europe, will become commercial to continue serving the healthcare and hygiene markets with nonwovens for medical gowns, drapes, diapers and sanitary products.

"2020 has been a challenging year for all of us. I am pleased with our ability to respond fast in approving new investments that continue to expand our presence in the hygiene and healthcare markets, while also moving forward with important existing projects," said Silverio Baranzano, Fitesa's CEO, adding that the above mentioned existing projects include the acquisition of Freudenberg Hygiene Brazil, Fiber Dynamics and Tredegar Personal Care, as well as the start-up of a new Reicofil 5 in November of 2020 in Thailand, which all together adds an additional 130,000 million tonnes per year to the company's portfolio.

"Fitesa will by the end of 2020 have significantly increased its participation in the films and elastics market, while consolidating its position as one of the largest spunmelt manufacturers worldwide," Baranzano added.

H&V to expand global Technostat capacity

MASSACHUSETTS - Advanced materials manufacturer Hollingsworth & Vose has announced a major capacity expansion of its Technostat electret filtration media products.

This new capacity will be installed at the company's Hatzfeld, Germany location and will begin operation in the second half of 2021.

Technostat is the company's highest performing electret filter media for Cabin Air, HVAC, Air Purifier, and other Indoor Air Quality (IAQ) applications requiring high filtration efficiency and low pressure drop. H&V's unique and proprietary Technostat products are said to play a direct role in fighting the COVID-19 pandemic in ventilator, respirator, and other critical medical applications.

With the latest Hatzfeld investment, H&V says it is further improving its global Technostat manufacturing footprint, which already includes Kentmere, England and Floyd, Virginia USA.

"This expansion will allow H&V to further support the growth of our key customers and strategic growth markets, globally. We are especially proud of the impact Technostat has made in the fight against COVID-19," said Patrick Demchko, global director of Product Line Management at H&V. "People are really starting to pay attention to indoor air quality, and how that air quality impacts their health. Whether in your home, your car, or within any commercial building, including schools and hospitals, Technostat offers a unique solution to the market in that it has the highest efficiency at the lowest air flow resistance available."

Amazon endorsement for C2C and other labels

OAKLAND – Cradle to Cradle (C2C) certified products are being featured in Amazon's Climate Pledge Friendly programme which has recently been launched in Europe.

The Climate Pledge Friendly label will enable Amazon customers across France, Germany, Italy, Spain, and the UK find more than 40,000 products that have earned one or more of 19 different sustainability certifications that help preserve the natural world.

To select the certifications, Amazon evaluated hundreds of external sustainability certifications and chose organisations that have demonstrated environmentally related sustainability benefits.

"Amazon's Climate Pledge Friendly gives consumers direct access to thousands of certified, sustainable products," said Peter Templeton, president and CEO of the Cradle to Cradle Products Innovation Institute. "The C2C Standard has long provided brands and manufacturers with a globally recognised, science-based measure for products made to have a positive impact on humans and our environment, and we are delighted Amazon has chosen to include C2C certified products in this new programme.

"Climate Pledge Friendly will empower consumers to make more informed product choices and inspire more future-focused brands and manufacturers to design, make and verify products using C2C and other respected standards recognised by the programme." *www.c2ccertified.org*

Kelheim Fibres joins European sustainability programs

KELHEIM - Viscose speciality fibres manufacturer Kelheim Fibres has partnered with the European Technology Platform for the Future of Textiles and Clothing (ETP) in two strategic programs.

The Bavarian firm has signed up to the Bio-Based Fibres and the Circular Economy programs, the aims of which are to bring key players from industry and science together to develop a long-term strategy to actively shape the sustainable realignment of the European textile industry.

According to Kelheim, its membership of the two three-year ETP programmes are in recognition of the fundamental changes inside the textile supply chain, particularly against the backdrop of the increasingly important sustainability debate.

"We have been manufacturing bio-based fibres for almost 85 years – these fibres are made from the renewable material wood and they are fully biodegradable at the end of their product lifecycle," explained Dr. Marina Crnoja-Cosic, head of New Business Development at Kelheim Fibres. "As an alternative to crude-oil based materials, these fibres are becoming increasingly popular in various applications. Part of the reason for this is the fact that we can functionalize our speciality fibres during the production process and give them the exact properties that are required for different end uses. In terms of performance, they can keep up with synthetic materials.

"Kelheim's sustainability criteria also includes the full life cycle of its products: when a textile, after its use, can become the raw material for new fibres and new products, that is a huge advantage in terms of sustainability. We want the best possible result – bio-based fibres and circular economy are the way to get there."

The European Technology Platform for the Future of Textiles and Clothing (ETP) is the largest European network for the promotion of textile research and innovation. It brings together over 200 members from industry, research, higher education, clusters, associations and textile-related sectors.

Elsewhere, the company has also achieved a leading score in Canopy's 2020 Hot Button Report.

Overall, Kelheim Fibres ranks among the top five producers in the list and was even able to improve their good previous year's result in the Canopy system, which closely documents supply chains and is actively supported by numerous leading fashion brands.

Under the terms of the Canopy environmental initiative, companies earn their rankings by being awarded 'green buttons' for the completion of CanopyStyle audits, contributions to conservation, using new alternative fibres, robust sourcing policies, transparency and traceability, and sustainable sourcing, with buttons removed for any associations with sourcing from ancient and endangered forests.

While Kelheim – as in 2019 - was assessed as "low risk" of sourcing from Ancient & Endangered Forests, the Bavaria-based firm said it was proud to have invested significantly in "Next Generation Fibre Solutions," and hopes to reach commercial scale by 2025. Also, highlighted in the report was Kelheim's increase of the proportion of FSC-certified fibre.

Kelheim said it had also accepted the recommendation to develop an action plan for continuous improvement of its sustainability: with a certification according to ISO 50001 (energy management), certification according to EMAS (expected at the end of 2020), the application to join ZDHC (Roadmap to Zero) and the newly created position of a sustainability manager, the viscose fibre experts have accomplished a considerable success in a short space of time.

Kelheim Fibres is the world's leading producer of viscose speciality fibres and a key supplier of viscose fibres for the tampon industry. About 90,000 tons of viscose fibres are produced every year at Kelheim in South Germany with applications ranging from fashion, hygiene and medical products to nonwovens and speciality papers.

Unicharm plans direct diaper recycling scheme in Japan

TOKYO – Unicharm, the world's third largest diaper maker, will turn used diapers into new ones which will come onto the market in 2022. The Japanese company plans to introduce more than ten facilities for diaper-to-diaper recycling by 2030, as it bolsters efforts to reduce waste, according to a report in Nikkei Asia.

Initial used diaper collections and recycling based on an ozone sterilization system will start in Tokyo.

Recycling diapers used to be a complicated process, but new technology has made it more efficient, the company says. Since 2016, Unicharm has been accumulating knowledge on recycling methods by conducting experiments in Kagoshima prefecture, southern Japan.

Unicharm's initiative comes at a time when there is an increasing amount of diaper waste, as Japan's population rapidly ages and diaper demand grows among the elderly.

"More people will be using diapers in an aging society and the proportion of disposable diapers in waste increases," Kenji Ueda, general manager of Unicharm's environmental, social and corporate governance division told the Tokyo newspaper. "We want to aim for recycling that enables diaper waste to be remade multiples times into new diapers."

Unicharm has the leading share of Japan's diaper market. As the country's elderly population grows, so does its adult diaper market. In 2019, the market had expanded by about 49% from 2011 to 8.6 billion pieces, according to the Japan Hygiene Products Industry Association.

Although another Japanese diaper maker, Kao, is also working on reducing waste by producing plastic pallets from waste generated during the manufacture of diapers, Unicharm's initiative of turning old diapers into new ones is seen as the world's first direct recycling scheme.

www.unicharm.co.jp

Avgol to relocate SMMS line to India

BARKAN - Nonwovens manufacturer Avgol is relocating an existing SMMS line from Israel to India and adding an additional meltblown line as it looks increase its presence in the region's hygiene market.

In a statement, Shachar Rachim, CEO at Avgol said that this move was part of the company's commitment to continue increasing its capacity and service across India and South Asia.

"This strategic move positions our line rapidly at the heart of the local market," said Rachim. "There is a huge domestic demand for hygiene products in India and across the South East Asia region, but there are heavy tariffs on importing materials. The demand is already at 165% against local supply capacity. Our projections show that through regional organic growth, improved promotion of feminine health, and increased awareness of hygiene because of the coronavirus pandemic, demand is only going to increase."

Avgol, an Indorama Ventures Limited company, is a major player in the global hygiene market with a comprehensive range of ultra-lightweight spun-melt nonwoven fabrics. "Serving the baby diaper, adult incontinence and feminine hygiene markets, this move enables us to deliver an improved local service across the entire area," said Rachim.

Investment in new production capacity is also expected to support further product development from Avgol, under its innovative Forward Innovative Thinking strategy (FITTM). The research and development program creates value, flexibility and sustainability for brands and manufacturers from the outset, the company says. "As a highly innovative and responsive supplier, we are continually investing in R&D to ensure we are developing the best products to meet demand," Rachim added. "With this relocation, we are ensuring that we can increase nonwoven fabric production to both meet the immediate, obvious local need and also be best-placed to serve the increasing future needs of the Indian market."

Relocation of the Avgol Line 5 production from Barkan, Israel, to the India is underway now, with installation expected to be completed by end of 2021.

Certifications propel sustainability story for Bast Fibre

VICTORIA - Bast Fibre Technologies has been awarded a raft of certifications signifying its One and Sero technical natural linen and hemp fibres are sustainable alternatives for the nonwoven industry.

The recent introduction of plastics legislation in many countries, combined with increasing global concern about deforestation, is driving the nonwovens industry to look for alternatives to synthetic fibres.

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Oerlikon and Teknoweb sign P&G licence agreement

NEUMÜNSTER - The joint venture between Swiss machinery manufacturer Oerlikon Group and Italian technology company Teknoweb Materials has signed an exclusive licence agreement which will allow it to deliver Procter & Gamble's innovative Phantom technology to the global nonwovens market.

The combined company was created in 2017 to develop innovative new products by incorporating Oerlikon Neumag's airlaid, meltblown and spunbond technologies, with Teknoweb's novel nonwovens solutions for the wet wipes industry.

The patented Phantom process for hybrid nonwovens combines the best of both airlaid and spunmelt technologies to deliver new, flexible ways of creating wet and dry wipes.

The technology offers a number of benefits by reducing resources and costs, while also increasing overall performance, the companies say. In addition, Oerlikon Nonwoven – Teknoweb Materials have further refined the process into their own Levra technology – an entry-level option which offers tailored production volumes with lower investment costs but is still suitable to be upgraded to the premium Phantom model in the future.

Essentially, Phantom technology was developed to produce hybrid substrates. The spunmelt and airlaid processes are merged into one step to combine cellulose fibres, long fibres such as cotton, or even powders with polymer fibres.

"This technology has clear advantages in terms of resources, performance, and cost compared to the previous processes on the market," Oerlikon said in a statement. "By removing hydroentanglement, it is no longer necessary to dry the material. Adjusting the process can optimize relevant product characteristics such as softness, strength, dirt absorption, and liquid absorption."

The greater freedom for formulating continuous and discrete fibres also allows for more flexible and absorbent structures and highly textured materials. The resultant wipes feel softer to the touch while providing more protection for the hands. Up to 90% of the material can consist of pulp fibers, although natural alternatives like cotton or synthetic fibres can be added to the mix.

As well as applications in a variety of wipes – such as hygiene wipes, anti-bacterial wipes, surgical wipes, or industrial wipes – Phantom technology is also suitable for absorbent cores, in diapers or feminine hygiene products.

BFTi's tree-free, plant-based natural fibres are now officially designated free of plastics from the Flustix system, a consumer custom-mark which enables customers to make plastic-aware buying decisions, and free from harmful chemicals according to Oeko-Tex Class 1 Standard 100.

It has also received USDA BioPreferred certification, which is managed by the U.S. Department of Agriculture, and 'Next Generation Solution' accreditation from Canopy, a certification process which showcases innovators offering alternatives to wood-based feedstock.

BFI has also been recognised as having a very low environmental impact rating with a score of 8.66 from the Higg Materials Sustainability Index. The Higg MSI, developed by the Sustainable Apparel Federation, simplifies and standardizes the process of measuring supply chain impacts. BFTi's Higg score of 8.66 for One linen fibre shows a significantly lower overall environmental impact relative to other fibres and is amongst the best ratings for a nonwoven natural fibre.

In addition, BFTi abides by harmful substance regulations such as the European REACH regulation and California Prop 65.

"These certifications clearly illustrate BFTi's commitment to delivering both high-quality and truly-sustainable natural fibres," said Jim Posa, President of BFTi. "Synthetics have been the default fibres in the industry for decades and these certifications now give our customers the confidence to accelerate their transition to sustainable fibres."

Bast fibres offer a number of performance advantages over and above their sustainability profile. These benefits stem from the natural role the fibres play as nutrient highways within the plant. According to Noel Hall, CEO and Chairman of BFTi, these superior fluid handling and distribution properties flow through to the nonwoven fabrics and ultimately to better performance for the consumer.

"With these critical certifications in hand we are excited to make the transition to a commercial stage enterprise with the official launch of our branded ONETM fibre this year," he said.

Mogul to install two new meltblown lines

GAZIANTEP - Nonwovens manufacturer Mogul is increasing its meltblown fabric production with the addition of two new lines.

The company has been involved in the production of meltblown fabrics since 2000 and currently has four meltblown nonwoven lines in operation.

With a significant increase in demand for PPE products following the global coronavirus pandemic, Mogul has invested in two further complete systems.

The lines will be housed at the company's Gaziantep facility. Both lines are 160 cm wide producing fabrics in the 15-100g range with electrostatic charge capabilities. The lines will meet N95 and higher efficiency masks and high efficiency filter applications as well as other industrial applications.

The first line will start by January 2021 and second line will start in approximately June of 2021.

New Ahlstrom-Munksjö platform for durable nonwovens

STOCKHOLM - Ahlstrom-Munksjö is looking to strengthen its position when it comes to high performance nonwoven products for durable applications with the launch of a new brand platform.

The intention of the Fibroc platform is to bring together a wide range of high performance products under the same brand, making it easier for business partners to recognize and understand the offering across the value chain.

"Thanks to its unique know-how and very wide technological platform, Ahlstrom-Munksjö has been able to create, throughout the years, an extensive range of high performance solutions specifically designed for durable applications," explained Daniele Borlatto, executive vice president, Filtration & Performance. "As the demand of high performance media for durable applications continues to grow, including in the building industry, we saw a need to create a new product platform to simplify our product offering and make it easier for the major stakeholders along the value chain to understand our offering."

"In the Nonwovens business, we have developed a unique know-how when it comes to high performance facers for technical plasterboard applications, helping our customers to create new solutions for the most demanding applications," added Pierre Mary, vice president, Nonwovens. "FibRoc will give us the required identity to present in a simple and straightforward manner the extensive product range we can offer to the market, making it much easier for our targeted customers to understand our full product offering, regardless of technology and place of manufacturing."

The first product offering from the Fibroc platform will be focused on the flooring market and be rolled out later this year.

At this point, the main manufacturing platforms for the Fibroc offering will be Karhula (Finland), Tver (Russia) and Brignoud (France); these 3 plants are fully certified for quality (ISO 9001), safety (OHSAS 18001), and environmental (ISO 14001) standards.

Nice-Pak to ramp up wipes capacity

ORANGEBERG - Wipes manufacturer Nice-Pak has announced plans to double manufacturing capacity at its plant in Arkansas with an upgrade to its existing production facilities and the addition of a new line next year.

The $50 million investment is expected to create a further 300 jobs at the plant in Jonesboro.

The coronavirus pandemic has fueled demand for the company's disinfecting wipes, leading the Jonesboro plant to operate around the clock. Announcing the investment, Nice-Pak chairman and chief executive officer Robert Julius said that the company's products were essential for consumers to help stay healthy and well amid the covid-19 pandemic. "We have been working nonstop to produce more wipes than ever before, and we commend the tremendous performance of our Jonesboro associates, who have been terrific in rising to the challenge," he said.

The expansion is expected to more than double the company's ability to produce disinfecting wipes and significantly increase capacity for other product groups. In addition to Wet Wipes, the company produces wipes for babies and toddlers, facial wipes and flushable wipes.

Earlier this year Nice-Pak produced data showing that its line of disinfectant products has demonstrated efficacy against SARS-CoV-2, the virus that causes Covid-19.

Essity launches digital incontinence care solution

STOCKHOLM – Hygiene and health company Essity is launching TENASmartCare, a new and reusable digital sensor for improved incontinence care for both professional and family caregivers.

The sensor is attached on the outside of a TENA incontinence product and notifies family members or care professionals when an incontinence product needs to be changed.

This could, for example, ensure a better night's sleep as the caregiver does not need to unnecessarily check and change an incontinence product. The product will contribute to improved well-being and hygiene by ensuring the right actions are taken at the right time and optimal use of incontinence products.

TENASmartCare will be available in several European countries and the US in the fourth quarter of 2020 and gradually be launched across other markets in 2021.

"More than 400 million people globally suffer from some form of incontinence," said Ulrika Kolsrud, President of Health and Medical Solutions at Essity. "TENASmartCare is an innovative and sustainable product that enables more individualized incontinence care, which benefits the care recipient, the caregiver and society as a whole."

Essity has also offloaded its 49% stake in Sancella Tunisia to the other owner Sotupa.

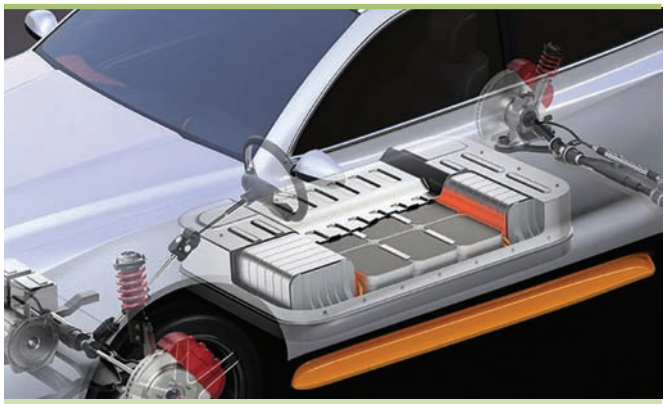
Sancella Tunisia offers a range of Essity's products and brands in Tunisia, Algeria, Morocco, and Libya. Essity will retain a presence on these markets through license and distribution agreements.

In 2019, Sancella Tunisia reported net sales of SEK 575m (TND 154m). The divestment is expected to give rise to a gain of approximately SEK 25 million, which will be recognized as an item affecting comparability when the transaction is completed.

The transaction is subject to approval by Tunisian authorities and is expected to be completed during Q4 2020.

The Nice-Pak's wipes are sold under the Grime Boss brand, as well as many popular private labels.

The testing was conducted by Microbac, a testing laboratory that offers antimicrobial/antiviral testing for disinfectants, antiseptics, sanitizers and medical devices, and was completed in line with U.S. Environmental Protection Agency (EPA) test methods and guidelines.



PyroThin aerogel protection for EV batteries

NORTHBOROUGH – Aspen Aerogels has secured a contract with a major US automotive OEM to supply PyroThin thermal barriers for use in its battery platform for next generation electric vehicles which will go into production in 2021.

Aspen's PyroThin, an ultra-thin, light-weight, flexible aerogel thermal barrier, is engineered to meet the safety and performance demands of the battery electric vehicle market.

The thermal barriers impede the propagation of thermal runaway both at the battery cell and battery pack levels, across multiple lithium-ion battery system architectures. Aspen's technology offers a unique combination of performance attributes that enable EV manufacturers to achieve critical safety goals without sacrificing driving range.

"All automotive brands leading the transition to electric mobility need to address the challenge posed by thermal runaway," said Don Young, president and CEO of Aspen. "PyroThin leverages Aspen's proven Pyrogel technology to mitigate the risk of thermal runaway and to drive the safe adoption of electric vehicles. This development represents a potential multi-billion-dollar commercial opportunity for Aspen over the course of this decade.

"Aspen has delivered over $1 billion of thermal and passive fire protection products to demanding industries throughout the world. This award not only establishes our position in the EV market but also reinforces our broader strategy to leverage our patent-protected aerogel technology platform into high value, high growth areas."

Aspen's aerogel-containing nonwoven blankets are employed primarily in the energy infrastructure and building materials markets, where thermal energy efficiency is at a premium. Marketed under the brands Cryogel, Pyrogel and Spaceloft, the products are manufactured at the company's East Providence, Rhode Island plant.

PureAir introduces FiberShield and Microbe-Sorb

NORCROSS – PureAir Filtration has developed an antimicrobial fibre called FiberShield that can be used as an added fabric layer in particulate filters to help fight microbes.

It is made of a proprietary blend of nonwoven nanofibres that are impregnated with Ionic+ antimicrobial silver technology supplied by Noble Biometerials, of Scranton, Philadelphia.

The antimicrobial fabric can be used in any particulate filter and is said to be the only one on the market to offer such flexibility to filter manufacturers. FiberShield has been tested and proven effective to inactivate over 99% of specific pathogens by independent testing laboratories.

A second new product from Georgia-based PureAir is Microbe-sorb, an adsorbent media that utilizes a proprietary blend of compounds to activate, enhance and deliver the strong antimicrobial properties of permanganate, a material commonly used in medical practices since the early 1800s.

Independent laboratory tests show Microbe-sorb also inactivates over 99% of microbes on contact.

Both of PureAir's new products are aimed at mitigating the impact of the Covid-19 pandemic by focusing on improving air quality through gas, odour and pathogen removal.

Record quarter for Glatfelter airlaid business

GLATFELTER - Despite reporting a drop in net income to US$6.5 million for its third quarter, down from $12.2 million in the same period last year, Glatfelter's airlaid business has built on its previous performance and posted another quarter of record profit.

Consolidated net sales for the same period were $233.5 million compared with $232.5 million during the same period in 2019 with the Composite Fibers' business and Airlaid Materials' net sales decreasing by 0.5% and 6.4%, respectively.

"Glatfelter delivered another quarter of solid results as both segments continued to safely produce and deliver essential engineered materials while maintaining a focus on operational excellence and cost discipline," said Dante C. Parrini, chairman and chief executive officer. "Airlaid Materials continued to build on its strong results from the second quarter, achieving another quarter of record profit."

Airlaid Materials' net sales decreased $3.8 million in the year-on-year comparison. Despite the 98% sequential quarter improvement in tabletop volumes, shipments overall for the segment were lower by 3.2% on a year-over-year basis due to continued softer demand for tabletop products as restaurants remained operating at dramatically limited capacity. This shortfall in demand was mostly offset by strong orders for home care, feminine hygiene and wipes products.

Airlaid Materials' third quarter 2020 operating income of

$12.9 million was up $1.3 million, or approximately 11% higher, when compared to the third quarter of 2019.

"Our steady performance during these uncertain times is a testament to the resilience of our employees and the agility of our business model, which is emblematic of the New Glatfelter," Parrini added. "We continue to maintain our vigilant efforts to keep Glatfelter people safe and ensure the uninterrupted availability of our products despite the challenging market conditions and volatility caused by the COVID-19 pandemic. Looking ahead, we remain focused on operational excellence and continuing our positive momentum to finish the year strong."

RKW outlines commitment to sustainable production

FRANKENTHAL - German film manufacturer RKW Group has ramped up its drive towards greater sustainability with a commitment to environmental campaigns aimed at reducing the amount of plastic waste found in oceans as well as a number of new eco-friendly product developments.

RKW says it pursues a comprehensive approach to corporate and social responsibility which involves supporting sustainable

goals on several levels: its involvement in cross-industry initiatives such as Zero Pellet Loss and ERDE specifically helps to reduce the release of plastics into the environment while research and development activities take into account the concept of the circular economy, which includes an increased use of recycled plastic waste.

Between July and September 2020, RKW also conducted an extensive campaign to highlight the importance placed by the company on sustainability at all levels. This included a cash donation of €5,000 to the "Oceans without plastic" project which is run by the German Society for Nature Conservation

(NABU). At the same time, product solutions for fully recyclable packaging materials are being introduced to the market with RKW production sites certified in accordance with the strict requirements of Ecovadis. Developments include down gauging, a reduction of film thickness while maintaining or even improving their properties; the use of biopolymers; Life Cycle Assessments on its products; and 100% recyclable films for the agricultural sector.

The assessments are based on international sustainability standards, including the United Nations Global Compact.

The campaign took even more hands-on turn in recent weeks as management joined colleagues worldwide to manually collect litter from natural environments at six sites in three countries including the RhineCleanup in Frankenthal, the beach in Helsingborg, Sweden, and in Guangzhou, China.

"The activities sent a clear signal," Harald Biederbick, CEO of RKW said. "We are part of the community and we get involved. We as RKW Group have been committed for years to giving plastics a sustainable perspective and further expanding the circular economy. It is therefore only logical to support projects and initiatives that also make a concrete contribution to more sustainability and environmental protection."

Valmet to invest in filter fabric line in India

ESPOO - Textiles and nonwovens machinery manufacturer Valmet is to install new filter fabric manufacturing in Pune, India in a bid to better serve its customers and improve delivery times of filter fabrics to the Asia Pacific and Middle East areas.

Announcing the investment, Tero Kokko, vice president, Fabrics Business Unit, Valmet, said the investment included manufacturing equipment for filter fabric production that will start operation in the second quarter of 2021.

"This investment gives us the necessary assets to further develop our services close to customers and strengthen our position in the market," said Kokko. "It also ensures our capacity for the coming years to deliver filter fabrics that respond to customer needs for maximized reliability and optimized performance of their production process."

Valmet is major supplier of filter fabrics and industrial textiles for the mining and chemical, dry filtration and laundry industries.

It also offers pulp mills, tissue, board and paper production lines, as well as power plants for bioenergy production.

Texon's Dongguan site secures SATRA & GRS status

Dongguan – Texon, a manufacturer of sustainable, structural material solutions for the footwear industry, has been awarded two significant industry accreditations for its nonwoven facility in Dongguan, China.

The site, which produces millions of square metres of box toe, heel counter, insole and lining technologies each year, now has SATRA Laboratory Accreditation Status and is certified to the Global Recycled Standard (GRS).

The accreditations follow in-depth assessments by independent auditors and reflect Texon's long-standing commitment to sustainability, and to prioritizing the health and safety of its sites, employees and the environment.

SATRA's Accredited Laboratory programme is a stamp of quality that is recognised throughout the global footwear and leather goods industries. The scheme provides reassurances to parties doing business together that the most rigorous material testing standards have been adhered to at all times.

To become a SATRA Accredited Laboratory, Texon's Dongguan site had to undergo a demanding assessment process. SATRA auditors visited the facility several times to confirm that the overall working environment, Texon's testing equipment, its quality management system, and its technicians met its exacting standards.

Texon also had to commit to regular SATRA audits. With SATRA Laboratory status in place, the site can now issue test reports for customers that include the SATRA logo – a sign of the validity of the physical tests conducted on its materials.

GRS is the international, voluntary, full product standard that aims to increase the use of recycled materials in products and reduce / eliminate the harm caused by production processes and social policies. On a mission to accelerate sustainable practices across the textile industry, the standard sets out requirements for the third-party certification of recycled content. It also specifies conditions relating to social and environmental practices and chemical restrictions.

During the GRS evaluation process, Texon had to demonstrate that all of its products and processes at Dongguan lived up to GRS requirements across all aspects of its supply chain. It also had to provide evidence of its policies on employment; showcase its environmental management system; provide figures on its energy and water use; and disclose its record keeping around chemical storage and management.

"Securing these accreditations shows our customers that our business operates to the highest possible standards and that absolutely everything we do is underpinned by a firm commitment to quality, safety and the environment," said Kevin Lowe, head of Operations (Asia) at Texon. "Added to the long list of ISO standards already in place at Dongguan, these standards help reinforce that we are a trusted partner to work with."

Dongguan is Texon's second SATRA accredited laboratory. The company's facility in Mockmuhl, Germany is already accredited for its production of cellulose products. Texon employs 180 people at its Dongguan facility.

Investigation reveals scale of UK PPE procurement concerns

An investigation into the UK government's procurement program during the COVID-19 pandemic has identified a lack of transparency and adequate documentation of some key decisions, such as why particular suppliers were chosen or how government identified and managed potential conflicts of interest, in the awarding of some contracts

The UK's National Audit Office has scrutinized the steps taken by the government to procure large volumes of goods and services at high speed to respond to the COVID-19 pandemic. Some contracts, the NAO report says, were also awarded after work had already begun, and many were not published in the timeframe they should have been.

PPE needed to be procured quickly during the first few months of the pandemic, when global demand far exceeded supply. By 31 July, over 8,600 contracts, worth £18 billion, related to government's response to the pandemic had been awarded.

The report shows that new contracts worth £17.3 billion were awarded to suppliers, of which: £10.5 billion were awarded directly without a competitive tender process; £6.7 billion were awarded directly through pre-existing framework agreements (which would have involved a competitive bidding process when they were set up); and contracts worth almost £0.2 billion were awarded using a competitive tender process or using a competitive bidding process from a framework agreement. Government also procured goods and services worth £0.7 billion through amendments or extensions to existing contracts.

The Department of Health & Social Care, supported by other departments, established an eight-stage process to assess and process offers of support to supply PPE. It set up processes to rapidly check suppliers' equipment against government's PPE specifications and to undertake due diligence on the suppliers. Contracts were awarded to 71 suppliers, worth £1.5 billion in total, before this process was standardised; 62 of these have been delivered, three have been cancelled and six remain ongoing.

The cross-government PPE team established a high-priority lane to assess and process potential PPE leads referred by government officials, ministers' offices, MPs and Lords, senior NHS staff and other health professionals. The team considered that leads referred by these sources were more credible or needed to be treated with more urgency.

Priority

About one in ten suppliers processed through the high-priority lane (47 out of 493) obtained contracts compared to less than one in a hundred suppliers that came through the ordinary lane (104 of 14,892). The sources of the referrals to the high-priority lane were not always documented in the case management system and the NAO found a case where a supplier, PestFix, was added to the high-priority lane in error.

In another example Ayanda Capital supplied 50 million masks that could not be used for their original purpose at a cost of £155 million. The deal was brokered by a businessman who was an adviser to the government's Board of Trade at the time. Elsewhere, a Spanish businessman who acted as a go-between to secure protective garments for NHS staff in the pandemic was paid US$28 million in UK public funds.

"For procurements where there is no competition, it is important that awarding bodies set out clearly why they have chosen a particular supplier and how any associated risks from a lack of competition have been identified and mitigated," the NAO explained. "This is to ensure public trust in the fairness of the procurement process."

However, in a selected sample of 20 contracts, the NAO found examples where departments failed to document key decisions, such as why they chose a particular supplier or used emergency procurement, and failed to document their consideration of risks, including how they had identified and managed any potential conflicts of interest.

The NAO also found that some contracts were awarded retrospectively after work had already been carried out. For example, a £3.2 million contract was awarded to Deloitte to support the cross-government PPE team's procurement of PPE on 21 July 2020, with the contract effective from 14 March 2020. The Cabinet Office's contract with Public First was awarded on 5 June 2020, with the contract effective from 3 March 2020. By asking for work to be delivered without a formal contract, risks such as underperformance were increased, the NAO said.

The investigation also revealed a clear trail of documents to support key procurement decisions was sometimes missing. The Cabinet Office asked the Government Internal Audit Agency to review six PPE contracts that have attracted media attention. The review found that while there was evidence for most controls being applied, there were some gaps in the documentation, such as why some suppliers which had low due diligence ratings were awarded contracts.

Responding to the NAO report, UK Cabinet Office Minister Julia Lopez said that the government had been dealing with an unprecedented global pandemic that had posed the biggest challenge to the UK in a generation. "As this report rightly recognises, we needed to procure contracts with extreme urgency to secure the vital supplies required to protect frontline NHS workers and the public and we make no apology for that," Lopez said. "It is important to maintain the public's confidence in how we manage their money, and we welcome the NAO's scrutiny of our processes and recommendations." **SNW**

2020... a year in nonwovens

"Something is going on, and you ought to look into it as reporters. Where are the masks going? Are they going out the back door?"

President Donald Trump, March 30th 2020.

"In 2019, the USA imported some 92.5 million dozen packs of disposable medical apparel – 1.1 billion items – directly from China. That figure does not even include face masks. At the start of 2020, the pipeline of supply from China to the USA for all of these products was completely cut off."

Brad Kalill, INDA

"Forget gold, copper, silver and steel. The hottest commodity of the coronavirus crisis is a little-known synthetic fabric called meltblown."

Guy Chazan, The Financial Times

"We've had so many conversations with companies who were making clothing wanting to pivot to PPE. The key thing for them to understand is that it's not just a case of purchasing off-the-shelf nonwovens, even if they come with approval. It's essential that the manufactured end product gains the approval."

Matthew Tipper, NIRI

"I'd never have thought meltblown could become such a prized commodity. The prices some Asian buyers are offering us are just eye-watering. There's a kind of gold fever at the moment."

Christian Klöber, Innovatec

"As the first country to enter lockdown, Italy need 90 million masks a month and the government launched the €50 million Cura Italia project. Textile companies like Calzedonia and Miroglio converted textile and garment production machinery for the production of face masks and PPE, and all of the big fashion and luxury brands got involved, from Gucci and Moschino to Prada and Valentino."

Santina Torri, Aeris Group

"The USA has a strategic petroleum reserve. It has strategic military assets. Where are the strategic meltblown assets?"

William Baldwin ,Forbes

"The market for second-hand meltblown machines is so small it's almost non-existent. This is usually a niche market amounting to just 5% of all nonwovens production, but there simply is no alternative to the meltblown filter in frontline face masks at present. I've been in this business for 25 years and to my knowledge only five European made meltblown lines have moved from one owner to another, and we sold four of them. That's just one line every five years."

Johan Berlin, Investkonsult

"Next to recycling, reuse and Design for Recycling (DfR), the use of renewable raw materials is decoupling plastics from fossil feedstocks. We see a growing demand in the market for polymers based on renewable feedstock. Different types of renewable feedstocks are now utilized for the production of polymers and we believe renewable is one piece of the solution."

Stephan Roest, Borealis

"Wipes have been a big part of managing the risks of the virus and household and disinfecting products started flying off the shelves in March. Companies like Clorox experienced unprecedented demand and the US government was quick, light and responsive to the needs of wipes manufacturers, pushing through approvals for inert ingredients in just 14 days in some cases, compared to the usual 90."

Jessica Franken, INDA

"As soon as the European Commission and member states asked for an increase in the production of face masks, EDANA members worked flat out to increase meltblown production. The industry now needs clear official estimates of current and future EU needs and guarantees that stockpiling and procurement will favour EU companies."

Pierre Wiertz, EDANA

"There's no doubt that during lockdown, many businessmen have been sitting at home mulling things over – there's probably been more strategic thinking going on than there has been for years."

Simon Macaulay, Anglo Recycling Technology

"Our politicians in the EU have to be responsible and ask themselves what they are doing with public money. They have supported companies in investing in Europe to build PPE capacities but when it comes to placing orders, it's all just still about price and we definitely have to get away from that. We really need to look at our rules to keep this production alive."

Henk Vanhoutte, European Safety Federation

"As face mask consumption increases, the appropriate disposal of them is becoming critical. Biomass-based and reusable face masks for the consumer market make perfect sense."

Nobuyoshi Yamasaki, TBM

"Chinese meltblown machines are cheap, but at the end of the day, cost you more money. Unfortunately, some European companies were blinded by this and have bought such machines, which are now sitting idle because they cannot achieve N95 standard. China has also invested heavily in new capacity, but the move now is to localisation."

Markus Müller, Reifenhäuser Reicofil

"Covid-19 has shown us that nothing is impossible. People thought it was impossible to start a machine remotely and that they had to travel in order to carry out installations and get the business done. We have a different picture today."

Tobias Schäfer, Andritz Nonwoven

"The fear is that the PPE business will snap back to Asia after Covid-19 and that is something INDA and others are lobbying hard to prevent. We are encouraging a national stockpile and seeking assurances of demand for the future and to get legislation in place."

Dave Rousse, INDA

"There are 129 billion face masks being used every month and if they're all single use or have to be changed every three-to-four hours that number could be even higher. To have something that is safe, workable, reusable and eventually recyclable – which can be designed into product development – is really important. It poses many challenges but I think ultimately, with the amount of waste this mask wearing is going to generate, we as an industry have to find a solution."

Mike Murray, Vita Group

"Within the EU, the healthcare buying organisations will be the key to ensuring the longevity of the face mask supply chains that have this year been established in Europe and the USA. At the height of the pandemic, prices were sky high, but now they are normalising and these buyers are again looking at China's prices and expecting to pay what they did before the pandemic. They do not care that we have EU labour costs, have to follow government rules and achieve the proper certification. They are buyers, they have their Excel spread sheets and at the end of the year they want their bonuses. Governments will argue that the healthcare systems are privatised so have to provide their own goods, so again there is no unity. If price is the only deciding factor, we will see a lot of the initiatives that have been started begin to fade away in the next two years and we will see a lot of bankruptcies in this area."

Sebastian van de Loo, Gherzi

"Around 80% of an item's environmental impact is determined at the design stage and here companies should be looking to extend product lifetimes, reduce emissions and improve overall circularity. Within the EU Green Deal, eco-design measures are likely to be set to discourage certain material combinations."

Ruben Dekker, European Commission

"The recovery and resilience of the EU's PPE supply chain must now be a political imperative and clear allocation rules need to be fixed at EU level."

Jesús Rueda, MedTech Europe

"China's priorities have always been defensive, rather than offensive, and its greatest fear comes from the threat of Radical Islam from the countries to its immediate West. China is paranoid about this and destabilisation on a much larger scale than the USA."

David Dodwell, Strategic Access Limited

"Many of today's material solutions do not align with biological principles and the laws of physics. Off-setting makes no sense and biomass, CO_2 and recycling are the answers, but creative partnerships and government support will be really important."

Robert van de Kerkhoff, Lenzing

"Plans for the fibre industry forwarded as part of the EU Green Deal will not work if it only focused on what is produced within the EU, with 60-70% of textiles and 80% of clothing being imported. A big part of the textiles and apparel supply chain would therefore somehow have to be made to respect any such legislation."

Frederic van Houte, CIRFS

"Think of the number of face masks needed per day in a world of 7.5 billion people, then half it. For every one million masks, put on one metre of meltblown beam. Divide this number by two and subtract the systems already delivered. Congratulations, you have found out the total number of meltblown lines needed. It's unimaginable, but fact."

Bernd Kunze, Reifenhäuser Reicofil

"As far as the fibres and textile industry is concerned, positive developments have been outweighed by enhanced consumption. Of the one hundred tons of fibres produced every year, seventy million tons end up in landfill, with only a small fraction recycled. That's a frightening development."

Austrian Minister for Climate Action Leonore Gewessler

"Face masks and PPE are crucial and there's a demand that is being met. The Single Use Plastics Directive was drawn up before face masks became a pressing concern, but we will need to be having that debate once producers have met the more immediate problem of establishing a supply chain. This is a story that's not going to go away anytime soon."

Sean Kerrigan, EDANA

"While politicians have increasingly talked about decoupling their interests from China and firming up national sovereignty after the PPE shortages, businesses are doing the opposite. In general, industries are investing more in China, which is currently where the growth is. There has been much talk of the repatriation of supply chains, but I don't see it."

Hosuk Lee-Makiyami, European Centre for International Political Economy

"It's true that China is investing in renewable energy, but it is also investing in everything else that's available – in nuclear and coal and much more. Fossil fuels are abundant and cheap, and we will need them more and more. We cannot have the kind of society we have established without cheap and abundant energy."

Samuel Furfari, Free University of Brussels

"There is a lot of lip service currently being given to circularity but there is not as much true recycling going on as consumers think. A single recycling step of turning waste plastic into park benches which then go to landfill is not enough – achieving quality that is just like virgin polypropylene with the same regulatory approvals, and restoring it to products with no trade-offs in an endless cycle, is the goal of PureCycle Technologies. A key advantage is the simplicity of our process, which requires a lot less steps than pyrolysis, consumes a lot less energy and ultimately is much more cost effective. Our existing plant is sold out for the next twenty years and we have been pleasantly shocked at the amount of demand there is from the market."

John Layman, Procter & Gamble and PureCycle Technologies

Design for life

EDANA's inaugural Circular Nonwovens Forum outlined the latest developments surrounding sustainability and circularity within the nonwovens sector

With over 100 delegates from across the nonwovens and related industries in attendance, the first edition of EDANA's new Circular Nonwovens Forum successfully created a new platform for discussion on sustainability and circularity within the nonwovens sector.

Nonwoven manufacturers, their suppliers and converters are increasingly focused on finding circular economy solutions and this gathering was established to explore this trend in depth with key technical actors, business leaders and decision makers.

Officially opening the session, Pierre Wiertz, General Manager of EDANA highlighted how there was a clear awareness and engagement about the sustainability of products in the nonwovens sector. "Circularity is one of the most complex pillars of sustainability strategies, so it is very important that, as the voice of our industry, EDANA facilitates industry interaction and knowledge sharing with forums such as these," he said. "I am happy to see this sentiment supported with the level of attendance and engagement we had at the forum."

The event, which will now be held annually, offered insightful presentations and discussions covering initiatives to address the circularity of AHP plastic waste, the biodegradability and compostability of nonwovens, material innovations, and developments in renewable polypropylene. The presentations were followed by well-attended breakout sessions allowing for participants to engage with the speakers.

"It is rewarding to see our ambition payoff with this new initiative," said Gil Stevens, director of Sustainability and External Relations at EDANA. "To witness such engagement in an online environment was especially pleasing and it's a credit to the team and the strong programme that we had such a large active audience. I am also very proud to see how sustainable practices are driving innovation in our sector, sketching tentative circular economy directions that could create virtuous loops and alternatives from which market forces will choose."

The forum opened with a keynote speech from Paola Migliorini, the Deputy Head of Unit for Sustainable Production, Products & Consumption on the European Commission's new Circular Economy Action plan.

The Circular Economy Action Plan

In March, explained Migliorini, the European Commission published the Circular Economy Action Plan, a package of initiatives that aims to double the EU's use of recycled material this decade, increase GDP and contribute to the bloc's climate agenda.

The onset of the Covid pandemic means that the full programme has not yet been rolled out. In the meantime, however, the European Commission has further developed a number of actions to address the climate crisis along with the challenges faced by the Covid emergency.

A key slide from Migliorini illustrated the depth of the issue. As a planet, we are currently using three times the natural resources that the planet can naturally give, which creates significant biodiversity stress. Furthermore, by 2050, the estimates are that there will be an increase of 70% in waste generated; we are not recycling anywhere near the rate required and only 12% of the materials used by industry across the EU are sourced from recycled materials.

The recovery plan on the table from the EU, which, it is hoped, will also help repair the economic and social damage brought by the coronavirus, is a two-fold response. Firstly, the short term Next Generation EU scheme will act as a new recovery instrument of €750 billion, which will boost the EU budget with new financing raised on financial markets. The second strand is the Multiannual Financial Framework, a reinforced long-term budget for the EU for 2021-2027 of €1,100 billion.

Migliorini noted that the European Green Deal policy adopted in December 2019 remains at the core of the sustainable development plan for the EU. A valuable part of this is the Circular Economy Action plan which includes 35

actions along the entire life cycle of products. The key features are to ensure less waste, to make circularity work for people, regions and cites, and a focus on key products' value chains. These include electronics, vehicles, packaging, plastics, textiles and construction.

The measures include instruments to make sustainable products the norm and to empower consumers in the transition.

This incudes, for example, the Sustainable Product Policy Legislative Initiative which, planned for Q4 2021, will set principles for product policy and requirements on products placed on the EU market. It will also widen the Ecodesgin Directive beyond energy related products.

The idea behind this initiative is to improve durability, reusability, upgradability and repairability while also restricting single use. There will also be increasing digitalization with items receiving a digital product passport.

The EU is also hoping that the action plan will help empower consumers and public buyers. This incudes a revision of consumer law that will see customers receive trustworthy and relevant information on products at the point of sale, establishing a new 'right to repair', and a legislative proposal to ensure companies substantiate their environmental claims using the Product and Organisation Environmental Footprint method by Q2 2021. This also includes a greater emphasis on durability, recyclability and recycled content within the EU Ecolabel criteria.

Post-consumer

A key challenges facing the nonwovens industry is the issue of post-consumer waste and recycling of Absorbent Hygiene Products (AHP). Today, most of this potentially valuable material is lost to landfill and incineration, calling for new approaches that can support a shift towards a circular economy.

Abby Turner and Eduardo Alvarez of Dow Health and Hygiene outlined the company's approach to accelerating recycling opportunities for AHP through design-to-recycle material solutions that have the potential to significantly improve the quality of post-consumer resin, and the production of bio-based

Dow outlined its way forward for the feedstock recycling and value chain collaboration.

polymers using renewable naphtha as well as circular polymers using feedstock recycling.

For a company such as Dow, Turner and Alvarez highlighted two main challenges when it comes to recycling AHPs. Firstly, hygiene products are mostly using different products in different components and separation is not easy, while secondly, the products contain human/biological contamination.

A key aspiration for Dow, said Turner, is to be the leading provider of circular polymers with a zero carbon footprint. "Our focus is actually driven through four pillars with a strong emphasis on design for recyclability and resource efficiency," Turner said. "The four pillars being Design for Recyclability, Mechanical Recycling, Feedstock Recycling and Bio-based Plastics."

Design for recyclability stands for Dow's vision of a mono-material structure design and allows the company to introduce a polyethylene-based offering for practically every component of both diapers and feminine hygiene product. "Recycling diapers and feminine hygiene products has it challenges," Turner and Alvarez explained. "Most of the products use multi-layer, mixed polymer film structures which are typically difficult to recycle. The use of mono-materials can simplify the separation process during recycling, and we believe PE is the best choice for that material."

In line with this thinking, Dow has developed its EXTREME PE diaper 2.0 – a diaper prototype that uses a much higher polyethylene content than found in commercially available products: a conventional diaper contains 4-8% PE, whereas the Extreme PE 1.0 diaper contains 33% and the Extreme PE 2.0 diaper 42%. An evolution from diaper 1.0, it features an extensible, fluffless absorbent core that enables a simplified, recycle friendly diaper design, without compromising the liquid management performance.

This project is the result of a number of different collaborations with customers to provide-market-driven solutions that consumers demand, Alvarez said, adding that the trends of comfort – which starts with softness, durability, discreetness and reduced skin irritation - are still important with sustainability moving up on the list. The PE mono-material is potentially more sustainable because it simplifies the recycling process by reducing the need to separate out mixed materials.

Dow is also exploring and evaluating new technologies for feedstock recycling and is already committed to the use of renewable feedstocks such as bio-based materials, commercially available, which are demonstrating the company's strategy and its engagement in providing sustainable solutions.

Bornewables

To drive towards a circular economy and reduce the population's impact on the environment, chemical firm Borealis is focused on bringing a portfolio of solutions to the market. As Stefan Roest and Gustaf Tobieson, as well as recycling, reuse and Design for Recycling (DfR), the use of renewable raw materials is decoupling plastics from fossil feedstocks and Borealis is offering multiple options to enable the transition to a circular economy.

"At Borealis we have invested in mechanical recycling and since 2016 are providing large volumes of post consumer recyclates to the market and yet it is difficult to re-use the mechanically recycled PP into new ›

nonwoven applications in the hygiene and filtration sectors," they said. "Now we can provide renewable plastics for nonwovens applications which leads to improved sustainability. We are also exploring new technologies in the field of chemical recycling and believe this could represent a circular potential for nonwovens both from a supply and a demand point of view."

Borealis is seeing a growing demand in the market for polymers based on renewable feedstocks with different types of renewable feedstocks now utilized. In a fully circular economy for plastics, the polymers are kept longer in the loop with recycling and the fraction that comes from virgin will be much lower.

This thinking has led Borealis to the development of Bornewables circular polyolefin products, which are manufactured with second-generation renewable feedstock, providing a sustainable solution for demanding applications across various industries, such as nonwovens. A key factor here is the use of second generation feedstock, such as oils from waste and residue streams rather than oils from the edible sources - essentially this means Bornewables is not competing with the demand for food crops.

Strategies

The next presentation saw Andrea Vittadello, sustainability project manager and Enrico Nieddu, director of the science centre at Merieux Nutrisciences in Italy discuss the biodegradability and compostability of hygiene products.

The EU plastics strategy and SUP directive commits the Commission to the establishment of a clear regulatory framework for plastics with biodegradable properties, they explained. Targeted applications such as using compostable plastic bags to collect organic waste separately have shown positive results and biodegradability standards exist or are being developed.

Addressing the latest plastics strategies, which are focused on plastics and marine littering, the team at Merieux are concerned that the 'lets avoid plastics' response is too simple a conclusion to what is a complex topic. "We need to consider safety and environmental balance," Vittadello said, adding that it was more about managing waste. "A key factor is educating the consumer to understand the correct way to dispose of different products.

"We have a number of different polymers and many biopolymers and various environments and different behaviours depending on the different polymers and the different conditions - marine, compost and soil for example and we have to find the correct application depending on the different polymer."

Outlining the different standards covering compostability and biodegradability, Vittadello noted that compostable materials have some strengths in relation to environmental impact. "The increase of the efficiency of separate collection of waste and composting are alternatives to landfill," he said. "Their use makes sense in a number of situations.

Chemical

A further perspective on these issues from Birla Cellulose was offered from the company's lead scientist Rupesh Khare, who described how chemical recycling is a key factor when it comes to growing the circular economy, by producing recyclate material that is of the same quality as virgin material.

"Recycling is an integral part of the circular economy - particularly critical for the single use products like wipes," he said. "There is an urgent need for a solution for recycling of cellulosic waste into fibres that can offer bio-degradability as well as comfort to the skin.

Today, around 75% of textile waste is disposed of either through landfill or incineration while less than 1% of fibres from clothing waste are recycled back into clothing.

Mechanical recycling is suitable for low-grade products, it is more associated with down-cycling, as it makes fibres weaker, Khare said, while with chemical recycling it is possible to achieve properties that are as good as virgin raw material - hence upcycling. Challenges here include the need for the separation of different blend components, particularly with the growing emphasis on the use of synthetic fibres beyond elastane and polyester, especially in the intimate apparel sector.

Discussing the recycling of cotton waste through the viscose process, Khare described how pre-treated cotton waste is added, along with dissolving grade pulp, to produce viscose fibres.

He outlined details of Birla's pre-treatment system and the resultant Liva Reviva fibre which, containing 20% recycled cotton from pre-consumer textile waste, has properties almost equivalent to regular viscose fibres and offers traceability that is identifiable throughout the supply chain.

Birla has also conducted trials on the development of nonwoven fibres made with 20% recycled cotton waste. "Viscose, Modal and Lyocell are produced from fully renewable sources," he said. "They can become the technology of choice for circularity by recycling cellulosic waste from textiles and other sources. Circularity has become a key element to address the issue of increasing land and marine pollution. Upcycling of textile waste is a challenging yet socially rewarding opportunity particularly for the single use application sector. A critical success factor for the the production of good quality fibres from textile waste is based around a sound sourcing, sorting and pretreatment processes." **SNW**

Bornewables is not competing with the demand for food crops.

Keeping it clean

The latest research shows that Barnhardt's Purified cotton is GMO-free

Barnhardt has released details of a study which demonstrates that its Purified Cotton fibre is GMO-free after undergoing scouring and purification processes.

There are two main varieties of genetically engineered cotton. The first variety is designed to resist Monsanto's Roundup, a glyphosate-based herbicide, while the second is designed to stimulate the plant's production of toxins, which kill the bollworm (cotton's primary pest).

It is important, says Barnhardt, to understand the implications of genetically modified (GM) cotton compared to non-GM cotton.

'Conventional cotton', says the company, refers to cotton that is grown with the help of synthetic agrochemicals, commonly from genetically modified seeds. Genetically engineered cotton now accounts for 75% of all conventional cotton. This method employs suboptimal farming and manufacturing practices that are significantly harder on the environment.

Organic cotton, however, is grown with reduced amounts of toxins, pesticides, and fertilizers. Methods and practices used for growing organic cotton minimize environmental impact. Federal regulations prohibit the use of genetically engineered seeds in organic cotton production, and require that these seeds are natural and untreated. Currently, organic cotton comprises less than one per cent of total global cotton production.

Raw Cotton is free from GMOs when grown organically. In order to be certified organic, farms must follow organic farming practices and factories must process organic cotton fibres separately from conventional cotton.

In its position paper from 2002, Barnhardt noted that independent laboratory tests show that after scouring/purifying (a.k.a. bleaching)) there are no GM/transgenic proteins present in processed GM cotton, and as such it is indistinguishable from processed non-GM cotton. In May 2001, industry leader Cotton Inc. organized a meeting to discuss the proper response to restrictions regarding the ability to supply bleached, GMO-free cotton. Cotton industry members decided to bring in an independent third party to determine whether transformed DNA material could be measured in cotton fibres harvested from GM plants, after the fibres had undergone purification processes such as scouring and bleaching.

Scouring is a pre-treatment process required to expel the non-cellulosic ingredients of cotton fibre. During this process, the waxes on the fibre are converted into water-soluble soaps, causing the remainder of the plant matter to be softened and free from hydrophobic and non-cellulosic components which result in absorbent cotton fibre.

Hydrogen peroxide is then used as a purifying agent, which whitens the fibres by oxidizing the colouring matter. The isolated use of hydrogen peroxide results in a Totally Chlorine-Free (TCF) process that is both effective and environmentally friendly, says Barnhardt. "Consumers expect well-made and high-quality materials, which makes these purification processes a necessity. Additionally, consumer preferences are leaning toward more environmentally conscious production practices, which means cotton manufacturers must explore methods that don't require harsh chemicals. The practice of TCF purification ensures that the cotton is of the highest and safest quality."

Following the Cotton Inc. meeting, a study was conducted to include each gene and the combination of these genes (stacked) currently used in commercial cotton production. The cottons were grown in replicated plots with pest control in North Carolina. These cottons were ginned without lint cleaning, and a conventional (non-GM) variety was used as a control.

The genetically enhanced varieties contained transformations of the BXN gene (Buctril herbicide resistance), Bt gene (worm resistance), R gene (Round-Up herbicide resistance), and the Bt/R stacked gene. The subsamples of these cottons were sent to an independent lab for GMO/transgenic testing. The analysis of these samples indicated the lab's ability to find transgenic cotton DNA in duplicated testing.

An unprocessed (not mechanically cleaned) sample of the tested cottons was submitted in duplicate to Barnhardt for processing in its lab's sample kier. The samples were processed using the equivalent of 14A, which is the standard procedure for processing #1 cotton in production. The scoured/bleached samples were returned to Cotton Inc., who submitted them to the lab for GMO/transgenic testing. All samples produced negative results—no GMO/transgenic material was found.

At that time, Barnhardt says it also received a copy of a report from a Scientific Steering Committee set up by the European Commission to consider the safety aspects of using genetically modified cotton in medical devices. This committee concluded that there were no additional risks in the use of genetically modified cotton in these products when compared to the use of GMO-free cotton.

"Based on our work, as well as the EC report, we found no measurable difference between GMO and GMO-free cotton after the fibres have been scoured and purified," says Barnhardt. Ultimately, cotton fibre is GMO-free after scouring and purification." For more details, visit *https://barnhardtcotton.net/company/* **SNW**

Purity pays for sustainable raw materials

An increasing demand for more environmentally friendly products has led to a corresponding demand for new, sustainably produced raw materials.

Raw materials made from a biological feedstock have been identified as a renewable and more sustainable alternative to fossil-based plastics. Unlike the vast majority of fossil-based polymers, many such biopolymers are biodegradable, which could help provide a solution to the dizzying escalation in plastic waste seen across much of the world.

The last few months have seen a plethora of developments as the biopolymer and renewable/recycled raw materials sector looks to increase its market share. These include new product innovations as well as significant investments in new manufacturing capacity.

As part of a €500 million project to turn its Grandpuits plant into a model zero-crude oil platform, for example, Total has unveiled plans to build Europe's first PLA plant in partnership with Corbion, along with the first chemical recycling plant in France, and a bio-refinery.

Partners since 2017 in the Total Corbion PLA 50/50 joint venture, Total and Corbion successfully launched their first PLA plant in Thailand in 2018 and have now decided to invest in a new European plant. Promising annual production capacity of 100,000 tons, this second plant will begin operations in 2024, making Total Corbion PLA the world's biggest producer of PLA.

A second joint venture with Plastic Energy will be responsible for the plastics recycling plant, which will convert plastic wastes into a liquid called Tacoil through a pyrolysis melting process. Tacoil will be used as feedstock for the production of polymers with identical properties to virgin polymers. In particular, the polymers will be suitable for use in food-grade applications.

The new unit will help Total meet its objective of producing 30% of its polymers from recycled materials by 2030.

The bio-refinery, to be commissioned in 2024, will have the ability to process 170,000 tons of sustainable aviation fuel, 120,000 tons of renewable diesel and 50,000 tons of renewable naphtha, used to produce bioplastics.

The unit will process primarily animal fats from Europe and used cooking oil, supplemented with other vegetable oils like rapeseed, but excluding palm oil, and Total will prioritize local suppliers.

Crude oil refining at the Grandpuits platform will be discontinued in the first quarter of 2021 and storage of petroleum products will end in late 2023.

"With the industrial repurposing of the Grandpuits refinery into a zero-crude platform focused on energies of the future connected with biomass and the circular economy, Total is demonstrating its commitment to the energy transition and reaffirming its ambition to achieve carbon neutrality in Europe by 2050," says Bernard Pinatel, president of Total Refining and Chemicals. "Grandpuits will remain a major industrial site drawing on the know-how and expertise of its teams, and our partner firms will be playing a key role as well."

Of the 400 jobs at the Grandpuits platform and its associated depot today, 250 will be maintained after the conversion.

In addition, the work projects will create up to 1,000 jobs over the three-year period for construction of the new units.

The Total Grandpuits facility.

Fibertex

Fibertex Personal Care has shipped its first batch of International Sustainability and Carbon Certificate (ISCC) Plus certified bio-based nonwovens – marking a major milestone in the development and expansion of a supply chain for biobased polymers.

"No matter what nonwoven product our customers need for their final application, our ISCC Plus certified bio-based nonwovens maintain the same chemical and technical performance," said Mette Due Søgaard, the company's QA and sustainability director.

As reported earlier by *Sustainable*

Fibertex Personal Care has shipped its first batch of International Sustainability and Carbon Certificate (ISCC) Plus certified bio-based nonwovens.

Nonwovens, Fibertex Personal Care has developed the new range of nonwovens fabrics based on high-purity, recycled plastic with polymer manufacturer Sabic.

The fabrics are made from Sabic's Trucircle circular polypropylene which uses feedstock derived from previously used plastics, certified under the ISCC Plus (International Sustainability & Carbon Certification) system.

The material is part of the Sabic PureCares family of polypropylene for personal hygiene applications that was introduced at the beginning of this year. The certified circular PP material produced is created from post-consumer mixed plastics that have been broken down into their molecular building blocks and then repolymerized to create virgin plastics.

Sabic applies the 'mass balance' approach to polymers offered as part of its Trucircle portfolio and services which spans design for recyclability, mechanically recycled products, certified circular products from feedstock recycling of used plastics, and certified renewables products from bio-based feedstock. The new material can be used as a drop-in solution while meeting the brand owner's requirements for purity and consumer safety for the hygiene industry applications.

The widely recognized ISCC Plus certification verifies that mass balance accounting follows predefined and transparent rules. In addition, it provides traceability along the supply chain, from the feedstock to the final product.

Fibertex Personal Care is now providing the certified circular nonwovens to customers from its Comfort, Elite, Dual and Loft product ranges.

LyondellBasell

Having already achieved the first parallel production of polypropylene (PP) and low-density polyethylene (LDPE) made from renewable raw materials at commercial scale, LyondellBasell now plans to produce and market two million metric tons of recycled and renewable-based polymers annually by 2030.

It aims to achieve this through planned investments in three central technologies – molecular recycling, mechanical recycling and polymers based on renewable feedstocks

LyondellBasell's says it molecular recycling technology, MoReTec, is on its way to becoming one of the solutions that can address the challenge of hard-to-recycle plastics such as multilayer and hybrid materials which can't be easily recovered by mechanical recycling, and return larger volumes of plastic waste back into the value chain at industrial scale. It produces clean feedstock made from recycled materials for new polymer production.

The company has established a molecular recycling pilot plant in Ferrara, Italy, which is processing household plastic waste at a rate of five to 10 kg an hour.

To create high-quality recycled polymers from household waste with mechanical requires a careful selection of polypropylene and polyethylene materials from the waste stream, further treatment and colour sorting.

LyondellBasell and Paris-headquartered waste specialist Suez are joint venture partners in a mechanical recycling facility called Quality Circular Polymers (QCP).

The QCP plant is currently capable of converting consumer waste into 35,000 tons of recycled polypropylene (r-PP) and recycled high-density polyethylene (r-HDPE) annually, with the objective of reaching 50,000 tons in 2021.

Working closely with Neste, a leading renewable raw material supplier based in Ispoo, Finland, LyondellBasell is offering a new range of polymers called Circulen and Circulen Plus made from renewable raw materials such as cooking and vegetable oil waste.

As drop in solutions delivering the same high-quality properties as virgin plastics, a variety PP and low-density polyethylene (LDPE) grades derived from renewable raw materials, with a lower CO_2 footprint are now available.

Ingeo

Biopolymers supplier NatureWorks has announced a raft of manufacturing technology projects, including lactide monomer purification efficiency, which will increase the availability of the full Ingeo (PLA) biomaterials portfolio by 10%.

Installation is currently underway at NatureWorks' facility in Blair, Nebraska, the world's first and largest commercial-scale PLA manufacturing plant. The projects will be completed by the end of 2021.

According to Natureworks, the expanded availability will support growth in markets that demand sustainable, low-carbon materials and require the high-performance attributes that Ingeo is uniquely suited to deliver. These markets include 3D printing and nonwoven hygiene masks as well as compostable coffee capsules, teabags, and coated-paper food serviceware.

"The market continues to rapidly evolve due to the COVID-19 pandemic as well as the undiminished demand for sustainable, bio-based alternatives to petrochemical-based plastics," said Rich

NatureWorks Blair plant.

Altice, president & CEO of NatureWorks. "For NatureWorks to satisfy this unprecedented demand, this purification technology is one of many additional capital improvements we are actively working on at our facility in Blair. At the same time, we continue to pursue a potential future second manufacturing site outside the U.S. to serve our growing international markets."

Ingeo polylactic acid is made in a multi-step process that begins with using annually renewable plants to turn greenhouse gases like carbon dioxide into long-chain sugar molecules. Dextrose, derived from the plant sugar molecules, is fermented into lactic acid that then undergoes a proprietary two-step process to transform it into lactide, the monomer for Ingeo polylactic acid polymer.

The additional annually renewable feedstock sourced to supply the new manufacturing projects will become certified by the International Sustainability & Carbon Certification System (ISCC) to the ISCC PLUS standard of best practices in agricultural production by 2025.

As part of NatureWorks' participation in the New Plastics Economy Global Commitment and commitment to sustainable agriculture, the company announced a new initiative in 2019 to ensure that by 2020 100% of the agricultural feedstock used for Ingeo made at their Blair site will be certified as environmentally and socially sustainable by the ISCC.

By 2025, NatureWorks has also committed that 100% of new feedstocks for additional manufacturing capacity will be certified as sustainably and responsibly managed via an independent third-party administered program.

NatureWorks was the first biopolymer manufacturer to become certified to the new ISCC PLUS standard in 2012, and currently has more than 60% of its agricultural feedstock certified.

Sulzer

Elsewhere in the PLA sector, Sulzer Chemtech has supported B&F PLA in the development of China's first fully-integrated sugar-to-PLA (polylactic acid) plant located in Bengbu, Anhui Province.

The facility utilizes Sulzer's distillation, crystallization and polymerization

Sulzer is now able to deliver plant-based polymers with different molecular weights.

technologies to produce 30,000 tonnes of PLA per year.

The new facility uses glucose from locally sourced corn to produce lactic acid and PLA of different grades, allowing B&F PLA to support the growing bioplastic market. The manufacturer is now able to deliver plant-based polymers with different molecular weights and L(+)/D(-) ratios to provide suitable materials for a wide variety of applications.

Sulzer, the leader in separation and mixing technologies, played a crucial role in the construction of the plant, which was completed in record time. The company designed, engineered and supplied customized mass transfer equipment for the purification of lactide and polymerization processes. Extensive remote assistance during pre-commissioning, commissioning and start-up was also provided to help B&F PLA begin its operations quickly and smoothly.

The successful completion of this project was enabled by Sulzer's extensive experience in delivering customized equipment and key processing units for bioplastic manufacturing. In particular, the company develops specialized falling film and static crystallizers, loop and plug-flow reactors, mixers as well as distillation and devolatilization technologies for plants involved in any stage of sugar-to-PLA processing.

PureCycle

Employing proprietary recycling technology developed and invented by Procter & Gamble, PureCycle Technologies says it has completed the bond financing required to build its first plant in Ironton, Ohio. The plant is expected to produce more than 100 million pounds of ultra-pure recycled polypropylene per year.

The US$250 million tranche of funding will enable PureCycle to accelerate its long-term growth strategy as well as expansion in the United States to meet demonstrated and heightened demand for a sustainable solution to recycled polypropylene (PP) around the world, the company said.

"The need of a solution for PP waste has been and continues to be a driving force for PureCycle. It is even more relevant during our current health crisis that a global solution be the focus to close the loop on making polypropylene a recyclable, valued material instead of letting it wash up on our shores," said Mike Otworth, PureCycle CEO.

Last year, PureCycle confirmed that Phase I of the project, the Feedstock Evaluation Unit, had purified waste carpet – transforming discarded carpet into clear, odorless, ultra-pure recycled polypropylene (UPRP).

Upon completion, PureCycle's first plant is expected to produce over 105 million pounds of UPRP per year, which will be used in consumer goods packaging, home furnishings, and other applications that currently have very limited options for recycled PP today.

PureCycle is also working toward submitting for a letter of non-object from the Food and Drug Administration for its UPRP to be used in food grade applications.

UK

Biome Bioplastics has been awarded funding of £273,000 from the UK Government's Innovate UK to support a new £350,000 collaborative project to scale-up its compostable bioplastic materials with the University of Nottingham's Department of Chemical and Environmental Engineering.

During August, the company announced that it had secured a US$550,000 contract from an existing major client operating in the United States packaging market. This is the largest single order to date for Biome's heat-stable and compostable bioplastic for coffee pod applications, which was first commercialised in 2019.

This bioplastic product takes less than three months to compost in industrial composting environments, and is designed

to provide the structure for coffee pods while preventing deformation when exposed to hot water brewing conditions.

The new UK funding will accelerate the testing of the commercial viability of the three most exciting candidate materials in the division's current research portfolio. It will involve the use of microwave technology in the development of an efficient, industrially scalable manufacturing process and will conduct further larger-scale testing at the Biorenewables Development Centre in York.

Since 2013, Biome's Bioplastics division has attracted more than £6 million in research and development funding, supported by various grants and in association with a number of leading UK universities, towards a new portfolio of bio-based and biodegradable materials. The work is focused on the replacement of aromatic co-polymers currently widely used in the market with a new generation of heteroaromatic polyesters, which have the potential for differentiated functional performance coupled with tailored biodegradation.

It is anticipated that the new project will start in October 2020 and will be completed within two years.

"This latest research project is an important enabling step in understanding the performance and functionality of Biome's most exciting novel polymers," said CEO Paul Mines. "We believe these materials could represent an important addition to the business's product range in due course and will bring benefits to manufacturers, consumers and the environment."

"Developing differentiated and commercially viable new products and processes, which have sustainability as a key focus, is one of our core interests and capabilities," added Derek Irvine, Professor of Materials Chemistry at the University of Nottingham. "We are excited to be working with Biome to apply our skills and knowledge to these interesting new sustainable polymers."

Aramid

During a two-year pilot project in the Netherlands, Teijin Aramid and BioBTX have successfully produced aramid fibres from bio-based benzene, toluene, and xylene (BTX) aromatic compound materials.

This will allow Teijin Aramid to improve the environmental impact of its production processes, without altering the material properties of its Twaron products.

The development was revealed at the Chemport Connect – Biobased & Circular Polymers event, which took place on November 17.

Teijin Aramid produces Twaron ultra-high-strength para-aramid fibres at its Dutch plants in Delfzijl and Emmen. They are used in diverse applications from car tires to airfreight containers and protective clothing – to make them stronger, lighter, and more durable.

The traditional building blocks for Twaron are finite, fossil-based raw materials, but Teijin Aramid now aims to transition to renewable materials as part of its long-term sustainability ambitions.

The company's ultimate ambition is a fully circular aramid chain which will require innovative approaches, such as the development of recycled raw materials from plastic waste, as well as increased collaboration between different partners across the value chain.

Based in Groningen, BioBTX has developed technology that transforms renewable resources, such as biomass and residual products, into chemical resources. The company uses bio-based raw materials to create benzene, toluene, and xylene (BTX) – the three aromatic compounds that form the initial building blocks of multiple products, including Twaron.

"The use of sustainable raw materials makes a significant contribution to the circular economy, in terms of reducing the use of fossil raw materials and generating fewer CO_2 emissions," said Cor Kamminga of BioBTX. "Our technology produces substances that are identical to oil-based products, but to be commercially successful, we must successfully demonstrate their use in existing high-grade products, such as aramid fibres."

Bio Twaron.

Berry

Berry has achieved ISCC accreditation for its facility in Biesheim, France.

Berry has been awarded the certificate from SGS Germany GmbH, the leading inspection, verification, testing, and certification company. The certification enables the site to sell ISCC Plus certified nonwovens which it produces for hygiene and medical applications.

ISCC Plus is a supply chain certification for circular materials, both recycled and/or biobased, providing traceability along the supply chain, verifying that certified companies meet high environmental and social standards.

"As the leading nonwovens provider globally, we continue to advance our product offerings to customers," said Achim Schalk, EVP and General Manager, EMEIA, for the Health, Hygiene, and Specialties Division of Berry. "One of Berry's core values is sustainability, as we know it is for many customers. With this certification, we can now offer another level of certified, sustainable nonwoven materials."

The ISCC Plus certification is validating the "mass balance system" utilization in the supply chain, tracking the quantity and sustainability characteristics of circular and/or biobased content in the value chain and attribute it based on verifiable bookkeeping with predefined and transparent rules. This certification enables customers of Berry to certify their usage of mass balance raw materials as the entire supply chain has been evaluated.

With the ISCC Plus certification Berry can produce nonwovens substituting a percentage part or 100% of the virgin resin with certified circular polymers, delivering identical material performance as virgin feedstock. The new Berry sustainable nonwoven solutions maintain the usual properties for hygiene and medical applications, to be recycled or processed by other waste management systems. As a result of this certification, Berry will introduce new nonwoven solutions made with ISCC certified feedstock from biobased and/or recycled mixed sources with carbon footprint reduction. **SNW**

Is fermentation natural?

At virtual INDA RISE 2020, the many potential benefits of PHA fibres for nonwovens were outlined, but the EU's Single-Use Products Directive could prove problematic, writes **Adrian Wilson**.

Danimer Scientific is aiming to produce 20,000 tons of its biobased Nodax PHA fibre in 2020, having only moved its first truckload in January this year.

All current capacity is sold out and work is already underway on the second phase of the plant in Winchester, Kentucky, which will more than double production capacity in 2021.

The company has also just signed a definitive merger agreement with Live Oak Acquisition Corporation, a publicly-traded special purpose acquisition company, and as a result, Danimer becomes a public company with approximately $385 million of unrestricted cash on its balance sheet to invest in future growth.

Danimer plans a significant expansion at its plant in Winchester, Kentucky.

Advantages

At the virtual INDA RISE 2020 conference held from September 29th-October 1st, Danimer director Isao Noda – one of the world's leading authorities in the field of polymer science who worked for many years at Procter & Gamble where Nodax PHA was initially developed – described its many advantages, not least for nonwoven products.

PHA is a bio-based and biodegradable aliphatic polyester made by the bacterial fermentation of renewable biomass, such as vegetable oils, sugars etc.

It shows rapid biodegradation under both aerobic and anaerobic conditions and has polyolefin-like thermo-mechanical properties in terms of strength, flexibility, ductility, toughness and elasticity, and polyester-like physical properties in terms of compatibility with additives and other fibres in polymer blends

There are many different PHAs – polyhydroxyalkanoates – but only a few are useful, Noda said. Nodax has a copolymer medium-chain-length branched structure for enhanced performance, including a lower melting temperature than other PHAs, minimised thermal degradation, good melt viscosity and easy control in extrusion processing.

By changing the comonomer content of Nodax, properties can be adjusted for specific applications – from very soft films to hard utensils and bottles.

Properly compounded Nodax resins can be spun into fibres in a manner very similar to polypropylene, to make totally bio and marine degradable nonwoven products.

Continuous development with undisclosed key partners in this respect are currently in progress, Noda said.

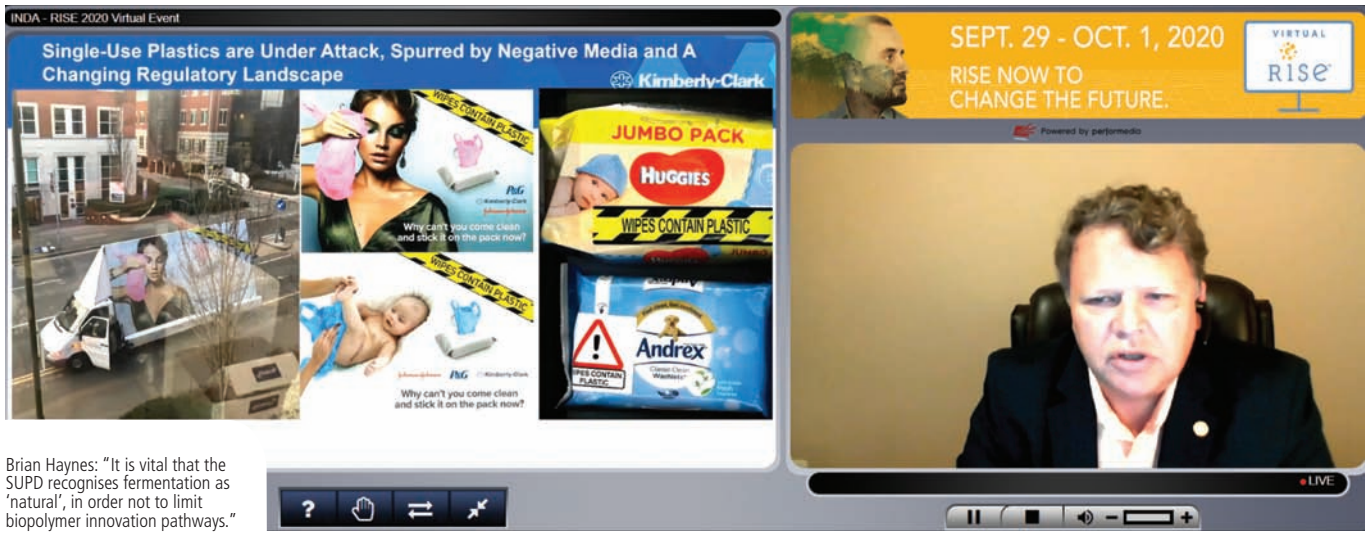
Nodax can be produced within a price range which is competitive with petroleum-based plastics, thanks to the judicious choice of cheap, efficient and locally available carbon sources such as vegetable oil from winter canola, the discovery of a high yield microorganism and the ongoing advancement of bacterial fermentation technology.

Obstacle

There is, however, a potential obstacle on the horizon, in the shape of the European Union's Single-Use Products Directive (SUPD).

As many will already be aware, both nonwoven wipes and feminine hygiene products are included on the SUPD list of

Isao Noda: "Nodax resins can be spun into fibres in a manner very similar to polypropylene."



Brian Haynes: "It is vital that the SUPD recognises fermentation as 'natural', in order not to limit biopolymer innovation pathways."

the ten products most commonly found discarded on European beaches. In July 2021 laws will come into force requiring such products to carry prominent warning labels, with extended producer responsibility for their clean-up, collection and disposal coming into place in December 2024.

Much work has been ongoing on the development of both wipes and feminine hygiene products based on alternatives to petroleum-based plastics that will avoid this legislation, naturally including biopolymers such as PHA.

Detail

It is in drilling down into the detail of the SUPD's definition of plastics that the problem occurs.

At RISE 2020, Brian Haynes senior technical director at Kimberly-Clark, quoted the following excerpt from the current SUPD's definition of plastic:

"Plastic means a material consisting of a polymer as defined in point 5 of Article 3 of Regulation (EC) No 1907/2006, to which additives or other substances may have been added, and which can function as a main structural component of final products, with the exception of natural polymers that have not been chemically modified.

"Therefore, polymers resulting from biosynthesis through artificial cultivation and fermentation processes manufactured in industrial settings, e.g. polyhydroxyalkanoates (PHAs), should not be considered natural polymers which have resulted from a 'polymerisation process that has taken place in nature'."

Regenerated cellulose in the form of viscose and lyocell is not included in the SUPD, as the resulting polymer is not chemically modified compared to the ingoing polymer. However, cellulose acetate is included in the SUPD, because chemical modifications compared to the ingoing natural polymer cellulose remain at the end of the process.

Disruption

"It is vital that the SUPD recognises fermentation as 'natural', in order not to limit biopolymer innovation pathways," Hayes said. "A Nova Institute report estimates the bioeconomy will be worth €2.4 trillion to the European economy, but the definition of 'natural' could really disrupt this industry in Europe and the rest of the world. What options does the nonwovens industry have beyond biopolymers if they are not exempted and the consumer preference is for plastic free products? What else can we process?" **SNW**

A great time to be in nonwovens?

The $90 billion global market for absorbent hygiene products (AHPs) has only been reinforced in a 2020 world in chaos. Consulting editor **Adrian Wilson** reports from the recent virtual Hygienix.

The Alliance to End Plastics Waste, involving more than 50 major companies from across the plastics supply chain, has pledged to invest US$2 billion in fighting the problem of ocean waste.

Meanwhile, as a result of extremely low oil prices and continued demand from the developing world, the oil industry plans to invest US$400 billion in the supply chain for new plastics in the next five years.

This was one of the surprising revelations from a joint presentation by Colin and Pricie Hanna, of Price Hanna Consultants at INDA's Hygienix absorbent hygiene products (AHPs) conference held virtually from November 17-19th.

Government aid

More surprises – from this side of the Atlantic at least – were provided by Lindsey Piezga, chief economist at Stifel Financial Corporation, who revealed, among other things, that the average American was better off in September than in February this year, before the Covid-19 pandemic erupted.

Disposable income per capita in the USA rose substantially in April, with the passage of a first-round aid package in March, which included an additional $600 a week in unemployment benefits and $1,200 in direct payment to those eligible. Average earnings increased early on during the pandemic, as lower-wage workers dropped out of the workforce. A second-round aid package was still being negotiated at the time of the conference.

There were more than 66 million applications for unemployment insurance filed in the US between April and October, although the unemployment level has been falling significantly since the end of US lockdowns.

Roughly $3 trillion in total government aid has been distributed since March, in tax credits, increases to unemployment benefits and food assistance, industry bail outs and loans, as well as for hospitals and testing.

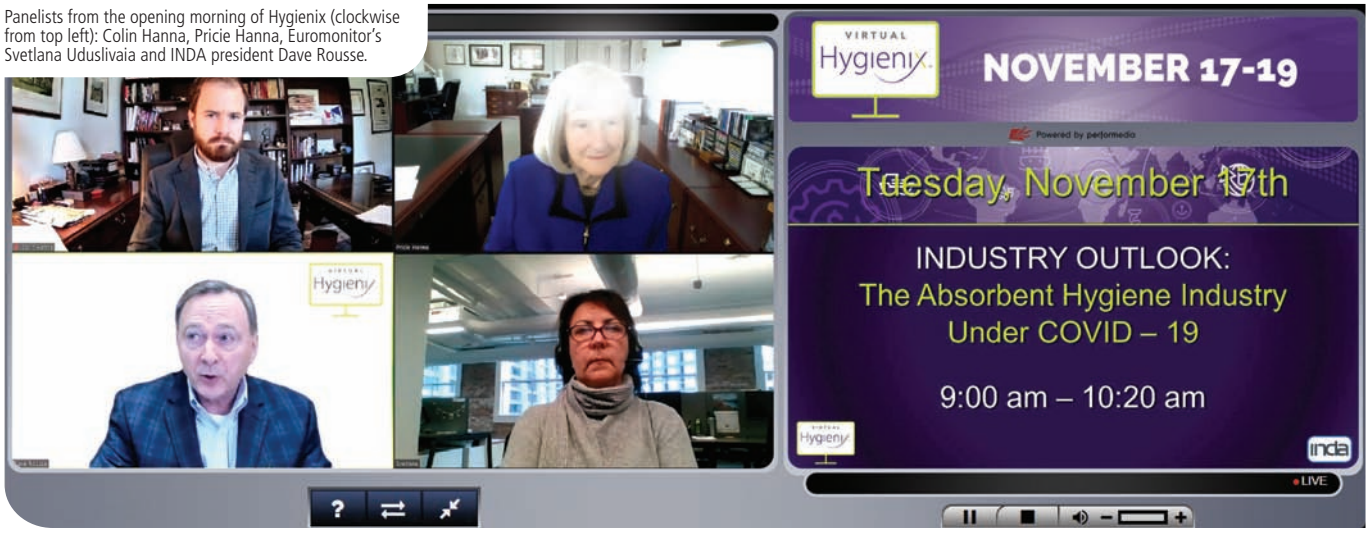
The Federal Reserve is relaxed about this and its chairman Jerome Powell has said the economy will need low interest rates to support economic activity for an extended period of time, which it will ensure.

> "The average American was better off in September than in February this year, before the Covid-19 pandemic erupted."

Consumption

Personal consumption in the US fell 12.9% in April, down 16.3% year-over-year, but climbed again by 8.7% in May, although it has since fallen to a lower level.

The changing nature of consumption



Panelists from the opening morning of Hygienix (clockwise from top left): Colin Hanna, Pricie Hanna, Euromonitor's Svetlana Uduslivaia and INDA president Dave Rousse.

> This year has been a better year for carbon emissions, but certainly a worse year for plastics in the oceans. People stayed at home and created more plastic waste.

in 2020, however, has if anything, only compounded the problem of plastic waste, Colin Hanna observed.

"People stayed at home and created more of this waste," he said. "It's not only about the huge amount of single-use face masks and PPE that have been consumed, but in shopping from home and take-out meals which have generated more demand for plastic packaging and single-use disposable products."

"This year has been a better year for carbon emissions, but certainly a worse year for plastics in the oceans," added Pricie Hanna.

In April, for example, greenhouse gas emissions fell globally by 17% and an overall fall for the year is expected to be recorded of between 5-8%.

In real terms, Bill Gates has observed, a fall of 8% means the equivalent of around 47 billion tons of carbon, instead of 51 billion being released into the atmosphere."

"That's a meaningful reduction, and we would be in great shape if we could continue that rate of decrease every year," Gates said.

Price Hanna begs to differ.

"This year demonstrated exactly how not to do it," said Colin Hanna. "The impact on air quality was immediate and striking, but the cost was phenomenal. The acceptable benchmark used by economists for the cost of lowering climate change has been put at $100 per ton of greenhouse gas emissions avoided. Estimates for the cost of the emissions reductions in the US and EU economies in 2020 come in at between $3,000-5,000 per ton."

Interventions

He also quoted a study by scientists funded by Pew Trusts, and published in Science magazine, which outlined a plan for a combination of significantly-funded but feasible interventions needed for a system-wide solution to the twin issues of virgin plastic production and of plastic in the oceans,

It would involve substantially improving both collection and landfill technologies, along with both plastic recycling, reduction and substitution measures.

The study calculated that if no action is taken, total plastics production will climb from 219 million tons in 2016 to 435 million tons by 2040 – an increase of 99%.

Aquatic pollution would meanwhile rise by 164% from 11 million tons in 2016 to 29 million tons by 2040.

Following the study's recommendations, with all three suggested interventions adequately funded and implemented, it would be possible to lower an increase in virgin plastics production from 219 million tons in 2016 to 228 million tons in 2040, growth of just 4%. Further, the 11 million tons of plastic in the ocean in 2016 could be reduced to 5.3 million tons, a decrease of 52%.

> The acceptable benchmark used by economists for the cost of lowering climate change has been put at $100 per ton of greenhouse gas emissions avoided. Estimates for the cost of the emissions reductions in the US and EU economies in 2020 come in at between $3,000-5,000 per ton.

"For the first time this year, the top five risks listed in the World Economic Forum's Global Risks Report related to the environment and climate-linked issues and as far as the absorbent hygiene industry is concerned, reducing the consumption of plastics should be the priority," Colin Hanna concluded. "There needs to be significant investment in waste handling in Asia where most plastic production takes place and where some of the biggest rivers are sources for plastic getting into the oceans, but the major demand for plastics is still coming from the West, so every angle possible needs to be considered."

The response to Kimberly-Clark's Tiniest Footprint campaign in 2019 showed a consumer readiness for real sustainable change.

Resiliency

In examining the resiliency of the AHP supply chains during 2020, Pricie Hanna also observed that new spunbonded and SMS nonwoven capacity installed for medical PPE in 2020 and 2021 may cause overcapacity in 2022, which would lead to beneficial pricing for AHP manufacturers.

With the latest figure for investments in planned nonwovens production in North America, Brad Kalil, INDA's director of market intelligence and economic insights confirmed this.

A total of 57 new lines will come on-stream in 2020 and 2021, of which 38 are meltblown lines initiated in response to the shortages for face masks and PPE production.

Combined, the new lines will add some 205,000 tons of annual new capacity, with five spunbond/spunmelt lines primarily for the AHPs adding 50,000 tons. The 38 meltblown lines will further add 39,000 tons annually, for face mask filters.

"Production growth is exceeding capacity growth at the moment, so this really is a good time to be in the nonwovens business," Kalil said.

Additional capacity, however, means the advantage could soon be with the industry's AHP customers, rather than nonwovens suppliers.

Fermentation revisited

In some further presentations on the theme of sustainability, Brian Haynes of Kimberly-Clark restated his earlier paper presented during the RISE conference at the end of September, on the dangers inherent in the European Commission's current view on fermentation in chemical processing. See our feature Is Fermentation Natural on page 30 of this issue.

K-C – as an $18.4 billion consumer- ›

facing corporation of largely GMCG and disposable products – has outlined some of the most advanced sustainability goals across any industry, that it is attempting to achieve in the next few years.

They include making 100% of its packaging reusable, recyclable or compostable by 2025, by reducing new, fossil fuel-based plastic, including replacing hard to recycle components with recyclable, renewable or reusable options and investing in circular systems that recover the packaging in a convenient way for consumers.

By 2030 K-C wants to reduce its overall plastics footprint by 50%, as well as its direct emissions by 50% and its value chain emissions by 20%.

> "The EC's current definition of what constitutes plastic, to include products made by fermentation processes, could be a serious impediment."

The plan is that 75% of the material in its products will be either biodegradable or will be recovered and recycled by then.

The EC's current definition of what constitutes plastic, to include products made by fermentation processes, could be a serious impediment to the plans of K-C in respect of many products, including nonwovens, Haynes said.

He highlighted the success of his company's Tiniest Footprint campaign in 2019 as an example of consumer readiness for real sustainable change.

2035

Nick Carter and DeeAnn Nelson of Avgol envisaged various potential scenarios for the world in 2035, following an unhappy near future of more natural disasters and viral outbreaks. Let's hope they're wrong.

They predicted multiple options for all AHPs coming to the fore by then, such as washable garments with changeable, biodegradable absorbent inserts for functions such as enhanced skin wellness, odour control and compostability,

Comfortable, discrete and biodegradable menstruation products with changeable, flushable inserts and single-use AHP garments designed for emergency with a built-in triggers to accelerate biodegradation, were other suggestions.

C2C

Monica Becker reported that Cradle to Cradle (C2C) certified products are now being featured in Amazon's Climate Pledge Friendly programme which has recently been launched in Europe.

The latest C2C Version 4 Certified Product Standard guides designers and manufacturers through a continual improvement process, aiming to achieve a circular economy approach. The quality categories on which products are graded are Material Health, Product Circularity, Clean Air and Climate Protection, Water and Soil Stewardship and Social Fairness.

"It is based on rigorous, but achievable practices," Becker said.

A product receives an achievement level in each of these categories – Basic, Bronze, Silver, Gold or Platinum – with the lowest achievement level representing the product's overall mark.

The criteria at each level builds towards the expectation of eliminating all toxic and unidentified chemicals, and the products breaking back down to nutrients after use, top establish a safe, continuous cycle.

So far, only gDiaper in Australia – authors of the recent report, A Circular Economy for Nappies published by Ellen Macarthur Foundation – more on this will be published on the *Sustainable Nonwovens* website shortly.

The Climate Pledge Friendly label will enable Amazon customers across France, Germany, Italy, Spain, and the UK find more than 40,000 products that have earned one or more of 19 different sustainability certifications that help preserve the natural world.

To select the certifications,

Redyper is an optional service for users of Dyper diapers which are supplied by a subscription system at $68 per month. For a limited time, Redyper opt in will be free with a monthly subscription of Dyper.

Amazon evaluated hundreds of external sustainability certifications and chose organisations that have demonstrated environmentally related sustainability benefits.

Redyper

Michael Waas of Terracycle and Sergio Radovcic of Dyper introduced the new Redyper platform for the collection of compostable diapers that was launched in February this year as an optional service in the San Francisco Bay area and is to be expanded to eleven other US cities.

Dyper diapers are made with viscose fibres from responsibly sourced, renewable bamboo and packed in clear bags made with oxo-degradable materials. With each delivery, the company purchases carbon offsets on behalf of its subscribers to help reforestation efforts.

Further, the products are free of chlorine, latex, alcohol, PVC, lotions, TBT and phthalates and are unprinted and unscented, while being soft to the touch, yet extremely durable and absorbent.

"These are the world's first certified plastic neutral diapers," said Radovcic. "They are not 100% perfect, not made from unicorn tears, but that wasn't the goal. Our approach was to reduce what we could and offset what we couldn't to move things forward."

Redyper is an optional service for users of Dyper diapers which are supplied by a subscription system – $68 per month. TerraCycle offers a packaging and door-to-door collection service for the diapers which are then composted in third-party facilities with specific handling and separation procedures. For a limited time, Redyper opt in will be free with a monthly subscription of Dyper. Following the limited time offer, Redyper will require a monthly maintenance fee of $39.

"Successful recycling comes down simply to economics," Waas said. "A product needs to be valuable enough to pay for the cost of collection, which is why aluminium, PET bottles, glass etc., are already collected. The vast majority of products are too small or complex or both and cost more to collect than you can sell them for. Diapers are a complex mixture of organic and inorganic

materials, but consumers care and understand that the products have no value otherwise. They want to help ensure their used diapers don't add to the more than 20 billion diapers filling landfills in the US every year."

Deep data

As part of a consumer-facing industry, AHP brands naturally set great store by surveys, in trying to provide the public with exactly what it wants, and those recently conducted by Euromonitor show some interesting variations between regions of the world.

Euromonitor's Svetlana Uduslivaia said there was still untapped potential of around $61 billion at retail for the AHPs market, and honing in on baby diapers, there was the immediate prospect of a further 32 billion units, with a value of $8 billion to be sold in China, as per capita growth continues to rise.

Some significant contrasts between the US and China markets were highlighted, with leak protection, followed by value for money, by far the most important preferred properties in diapers in the US, and the use of natural ingredients, followed by softness, most important to China's consumers.

Interestingly, Uduslivaia said that consumers in developing countries were more willing to pay extra for sustainable attributes of AHPs than those in the West.

Stigma issues

North Shore Care Supply of Green Oaks, Illinois, has built up a reputation of going further than other companies as a supplier of adult incontinence products and president Adam Greenberg shared findings from the extensive work it has done on understanding stigma issues.

He showed a range of word maps pulled from consumer correspondence highlighting the mental anguish the condition often causes.

"Sufferers of adult incontinence can feel confused, conflicted, and isolated over their condition and North Shore's approach is about reassurance that adult incontinence is entirely normal," Greenberg said. "Our customers can feel like it is the beginning of the end of them being in control and they can also feel intensely judged, but adult incontinence is very common, often treatable and regardless, very manageable. Our message to them is, it's not your fault and you're not alone. The condition won't get better on its own but there is help available."

He also spoke of the confusion caused by marketing terminology around AI products, and in particular the term "briefs".

"People get upset by ordering briefs and getting diapers," he said.

Performance trumps sustainable concerns in the USA, according to the data scraping of Diaper Testing International.

Ian Heyman and Alex Gross of Dermasteel outline the benefits of the Hygienix Innovation Award winner, Male Drip Protection.

Data scraping

More word maps were shown by Natalie and Irene Richer of Diaper Testing International who have been leaving no virtual stone unturned in extracting meaningful consumer insights on diapers via the deep data scraping of free resources such as Amazon reviews based on verified order histories.

Again, these seemed to confirm much more of a concern about product leakages than any sustainable attributes of products.

Innovations

The Hygienix Innovation Award was claimed by Dermasteel for its Male Drip Protection, a patent-pending AI product for men with, proprietary design that is discreet, form-fitting and tailored to the male anatomy. It provides effective containment of bodily fluids while protecting the wearer's skin and providing comfort and confidence.

"Bigger isn't always better," said Ian Heyman, Dermasteel's CEO. "Our product is a quarter of the size of an absorbent pad and a tenth of the size of an adult diaper. It has a true anatomical fit and is undetectable under clothing."

"Guys are opening up to us and we're enjoying a very open dialogue with our customers, because we're talking with them, bot at them," added general manager Alex Gross.

Other nominees for the award were H.B. Fuller for its new class of Full-Care 6217 adhesives and Technical Absorbents for the new high gel strength (HGS) SAF.

Arizona

Virtual Hygienix 2020, the sixth edition, attracted over 240 professionals from 18 countries from throughout the supply chain.

The next Hygienix is scheduled for November 15-18, 2021, at the Westin Kierland hotel in Scottsdale, Arizona.

"We look forward to gathering our industry professionals together for Hygienix and returning to a face-to-face format next year," said INDA president Dave Rousse. **SNW**

VacuFil process offers customization for recycled polyester

The VacuFil process from BB Engineering now enables the reutilization of polyester waste into high-end textile filament and fibre products which are suitable for a range of applications for the nonwovens sector.

Traditionally, manmade fibres and filaments made from recycled bottle flake material require corresponding single variety collection or pre-sorting of the bottle material being recycled and comprehensive cleaning before they are shredded into polyester flakes.

It is then possible to spin these flakes directly into POY filaments (DTY in the downstream process), staple fibres, nonwovens and BCF endless filaments. Today, the technology is so refined that the products achieve a quality standard that corresponds to virgin material in many applications.

However, there are also many cases in which the material quality and/or property achieved does not comply with the market requirements.

For numerous nonwovens applications, parameters such as viscosity and homogeneity are crucial and must be subject to virtually no fluctuations. In other words, to enable recycled polyester to be used here in the first place necessitates its pre-treatment.

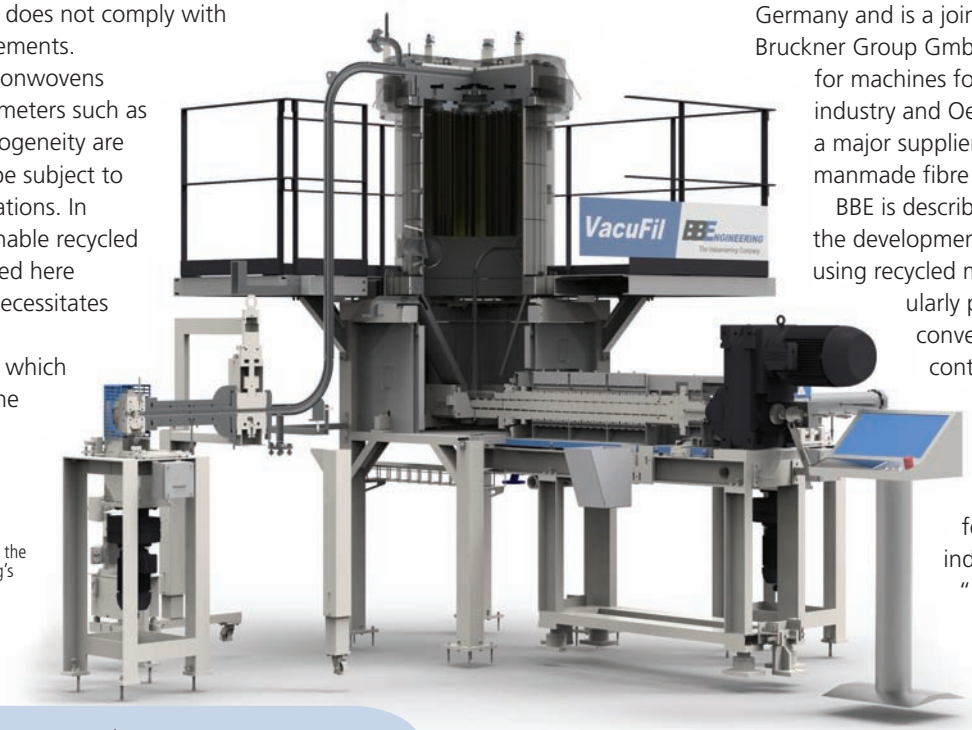
It is this process which is carried out by the VacuFil recycling system which enables the manufacture of extremely homogeneous, viscosity stable rPET melt and therefore a precisely definable and reproducible raw material for downstream processes.

As a manufacturer of components and systems for producing manmade fibres, BB Engineering says it is familiar with the dire impact that even the smallest viscosity deviation has on the spinning plant process.

With VacuFil the company says it has succeeded, depending on the intended end application, in aligning the melt with the process in a targeted manner.

Macro and microscopic melt homogeneity is achieved by means of homogenization drying, controlled plasticizing, gentle filtration and controlled vacuum degassing while in the downstream processes, the melt can either be first granulated or fed directly into the end product's manufacturing process.

In fact, recycled polyester, produced using the BBE VacuFil process, can even be used for more challenging downstream processes, including the manufacture of FDY filaments. Here the material is subjected to extreme loads throughout the entire manufacturing process. In the FDY single stage process, the filaments are drawn and taken up at speeds of up to 4,500 m/min.



Visco filter components are the heart of the BB Engineering's VacuFil recycling system.

Leader

BBE is headquartered in Remscheid, Germany and is a joint venture between Bruckner Group GmbH, a market leader for machines for the polyester foil industry and Oerlikon Textile GmbH a major supplier of systems for the manmade fibre industry.

BBE is described as a pioneer in the development of processes for using recycled materials, particularly polyester flakes, and converting them into contemporary, market appropriate products for filaments, fibres and nonwovens for manmade fibre industry consumers "Our decades of

competence kicked in while we were developing the VacuFil," said Dr Klaus Schäfer, CEO of BBE. "What Oerlikon Barmag brings to the table as a technological leader in the field of filament yarn spinning systems, BBE complements with considerable know how in the area of extrusion and filtration and in systems construction and engineering."

BBE is also the exclusive supplier of extrusion filter technology for various manmade fibre industry polymers, particularly polyester, for its parent companies.

As a result of its association with the Bruckner and Oerlikon Textile groups, BBE says it is always aware of the requirements of the further processing industry in terms of granulate and melt made from recycled polyester. It is also, and particularly, for this reason, that the further development of post consumer PET material and post production PET material is of special interest to BBE's parent companies and the reason for them bundling their recycling know-how to form the BB Engineering joint venture.

BBE is located at the same site in Remscheid as Oerlikon Barmag. When it comes to the downstream processes with the VarioFil spinning system - the basis for spinning high-end manmade POY and FDY fibre filaments for textile and industrial applications that has been tried and tested for decades now - the company says it is already an established manufacturer of compact and flexible systems for the manmade fibre industry.

As the company points out, VarioFil R spinning systems have been used for converting PET regranulates and, directly, PET flakes into POY/DTY for both textile and carpet applications while spin dyed products made from PET recycled granulates are also being produced using VarioFil systems.

The development, construction and assembly of VacuFil and VarioFil units are carried out exclusively in Remscheid, very much in line with the company's tried and tested 'Made in Germany' machine construction philosophy.

Premiere

VacuFil premiered as a pilot technology at the ITMA 2019 in Barcelona, garnering considerable attention. Since then,

Matthias Schmitz, *VacuFil* Product Manager, and Dr. Klaus Schäfer, Managing Director.

numerous tests have been conducted on the system at the Remscheid site using authentic waste material supplied by various customers The polyester recycled using the VacuFil has been successfully spun into POY and FDY.

According to BBE, various target viscosities and starting materials are not a problem for the VacuFil as a result of the key component, the Visco vacuum filter which negates the use of a reactor. Instead, the VacuFil unites gentle large scale filtration and swift intrinsic viscosity build up for consistently outstanding melt quality.

The attached vacuum unit, which is automatically regulated between 1 and 30 mbar, removes volatile contamination, ensures a controlled IV increase and additionally achieves an ideal melt homogeneity, which is vital for the downstream spinning performance.

Comprising an inline viscosity measuring unit connected to the vacuum system, the IV can be continuously and reliably adjusted. Hence, producers are able to generate the specific kind of recycled polyester they require for their application. The high-level degasification performance then relieves the energy intensive pre drying stage.

With their modular structure and a performance spectrum of between 300kg/h and maximum 3 000kg/h, BBE is confident that VacuFil systems will open up various possibilities for processing polyester waste. Bottle flakes, agglomerated spinning waste or a mixture of both can be processed into high quality PET granulate or fed directly into the downstream processes.

The entire recycling process is also controlled and monitored by Oerlikon Barmag's GUIDE system, which is said to guarantee reliability. With an optional 3 DD mixer, the market proven mixing technology manufactured by BBE, producers can not only add additives to the melt, they can also easily change rPET ratios in the main melt from between 5 and 50% stream in order to comply with legal standards.

Configurations

Customer requirements can be optimally catered for with various system configurations. "The close collaboration between the future operators of the system and our experts ensures that projects are successful," said Matthias Schmitz, VacuFil Product Manager. Tests carried out using authentic raw material supplied by customers in our small scale production system guarantee a sophisticated process that complies with the mentioned requirements."

He continued: "With our process visualization system, customers always have a close eye on the broad operating window and the optimum operating point. And if this is occasionally not the case, our software supplies useful process optimization information. This saves costs and increases productivity." **SNW**

SNW

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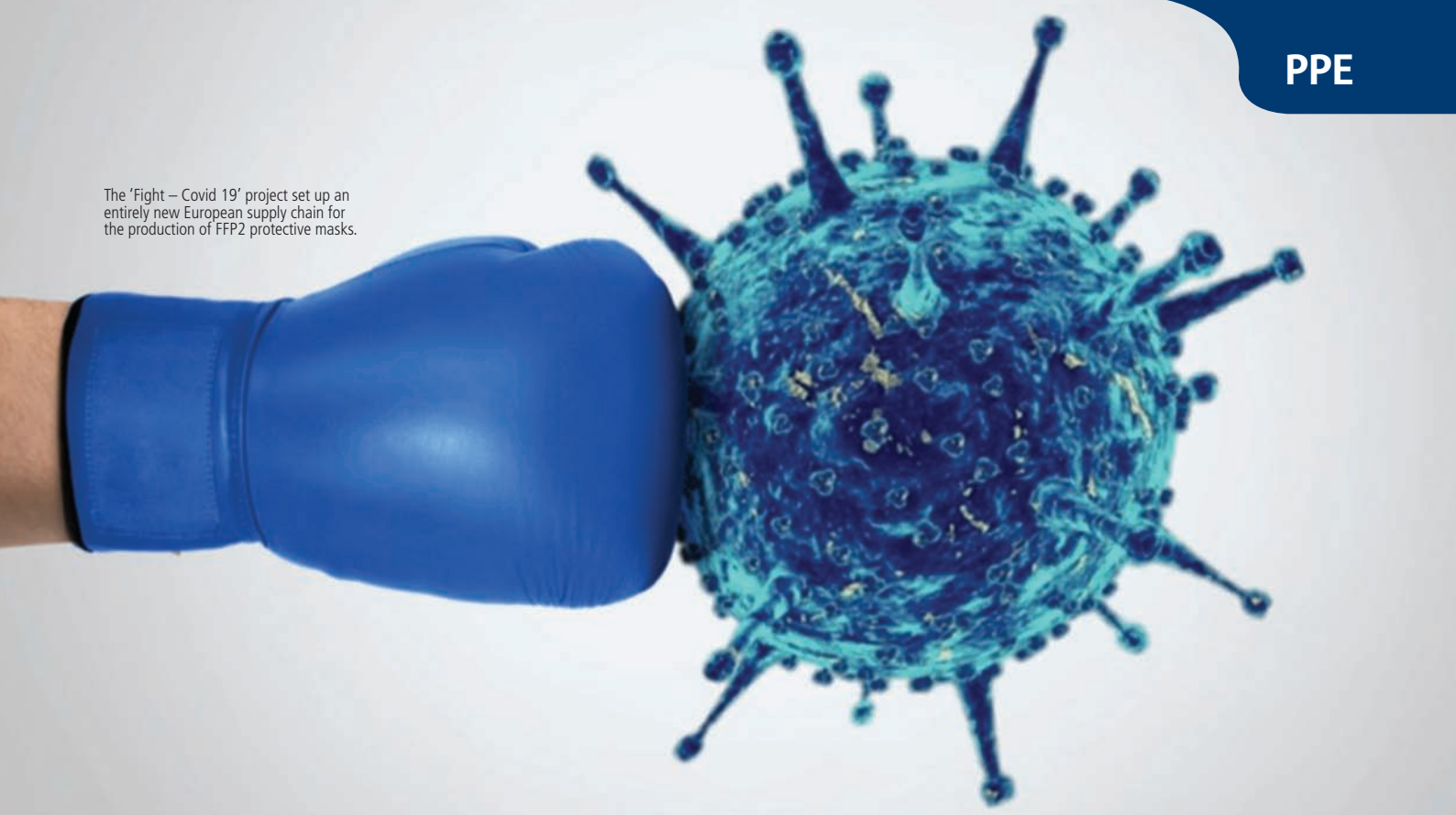


The 'Fight – Covid 19' project set up an entirely new European supply chain for the production of FFP2 protective masks.

Looking for longevity

Where will the US and European supply chains that didn't exist at the start of 2020 be in two years' time? Frontline developers discuss.

Some of the key issues that face the rapidly-developed new supply chains for face masks and other items of PPE in Europe and the USA were outlined during a round table discussion at the Innovate Textiles & Apparel online textile machinery exhibition on October 21st.

Taking part were Jordan Schindler, CEO of Nufabrx of Conover, North Carolina, Mike Murray, CTO of the Manchester, UK-headquartered Vita Group, Sebastian van de Loo, business developer with engineering consultancy Gherzi, of Zurich, Switzerland, and Sarah Kniehl, sales enginer at ultrasonics specialist Herrmann Ultraschall, of Karlsbad, Germany.

All have been heavily involved in new face mask projects during 2020.

Theramasks

Nufabrx – which is regularly focused on the infusion of therapeutics and medications into fabrics for new health and wellness applications – worked with two other small US companies to develop and launch re-usable face masks for consumers called Theramasks.

Exploiting the antimicrobial benefits of copper, the masks can be washed up to 30 times and consignments are being supplied to US government institutions, organisations such as Fed-Ex, America Airlines and a number of restaurant chains, as well as consumers.

Nufabrx Theramasks contain the benefits of copper.

Vita Shield

Vita Group has pivoted production at its PU foam plants in the UK and Slovakia to the production of Vita Shield face coverings for the consumer market. Using three layers of materials that are Oeko-Tex certified for direct skin contact, 90% bacteria efficient Vita Shield masks have been independently approved for prolonged inhalation and may be worn for sustained periods of up to eight hours. They are also washable and reusable up to 10 times.

The Vita Shield VS2 face covering has meanwhile been certified by independent test house Centexbel to have 98% filtration efficiency for 3 micron particles,

Fight – Covid 19'

Gherzi has been involved in the 'Fight – Covid 19' project, setting up an entirely new European supply chain for the production of FFP2 protective masks, from the procurement of the appropriate material, ramping up of high-volume production of the masks, and coordination of both processing and distribution.

This directly involved four key companies with 12 more providing asistance to scale up and produce and distribute some 12 million FFP2 masks per month.

The initiative is now pushing for the funding of an integrated nonwovens and face mask line to be set up at a university in Germany, which can be used for research and scaled up for full production in the case of another emergency.

Vita Shield masks are Oeko-Tex certified for direct skin contact.

> "There are 129 billion face single use masks being used every month. We need a solution that is safe, workable, reusable and eventually recyclable."
>
> *Mike Murray, Vita Group*

Herrmann Ultraschall has meanwhile been involved in assisting a range of companies from both the nonwovens industry and beyond – such as automotive components supplier Zender – in establishing new lines for face mask production. Hermann set up a mask task force specifically to deal with demand. Ultrasonic bonding has a number of key advantages over sewing or stitching the seams of face masks, in respect of safety and comfort, in addition to speed.

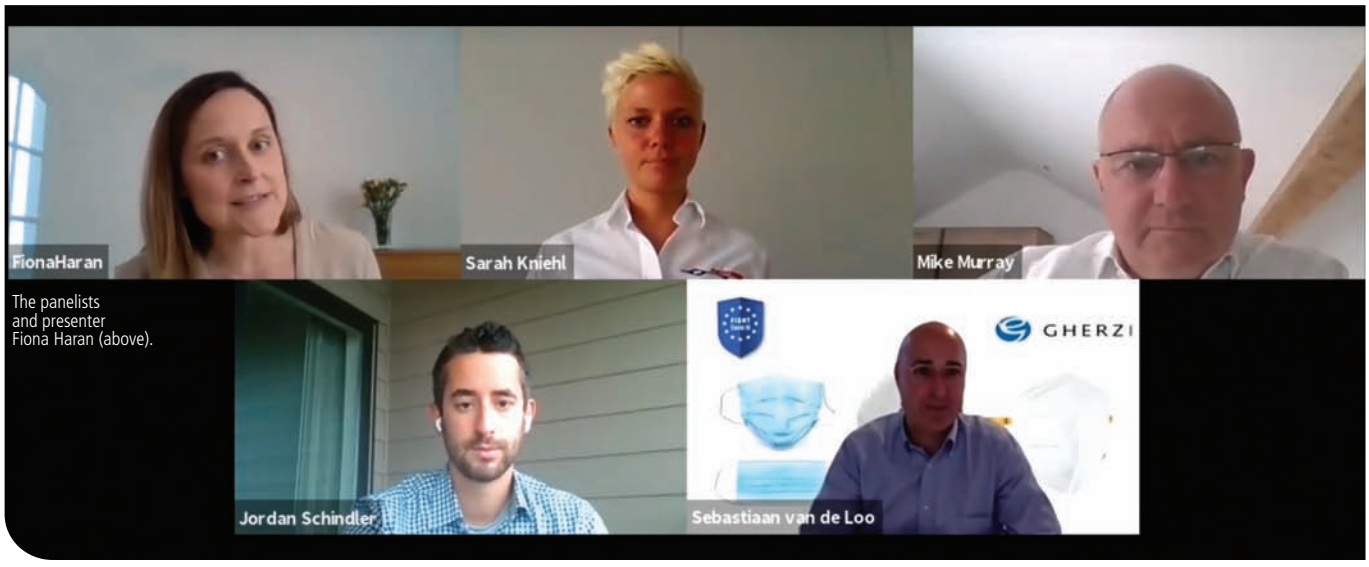
Kniehl said that Herrmann Ultraschall's task force was still very active, with a lot

Herrmann supported German automotive supplier Zender in pivoting to face mask production.

of face mask manufacturing projects still going on.

"We try to provide the best support and the quick response that's been needed has really changed our way of working," she said. "With our technology we can increase the reliability of the mask making process, increasing output and stabilising processes to ensure the masks that enter the market are of good quality and that they are safe, because we have seen many unsafe masks being imported into the EU that aren't filtering the way they should. We work with government initiatives as much as new players.

"A lot of our long-term partners like the hygiene and medical producers have also modified some of their lines. We have one Italian hygiene customer who has been building face mask machines on a daily basis and we have five technicians there to support that



The panelists and presenter Fiona Haran (above).

initiative. We are working to help everyone who wants to work in this global team to fight Covid-19."

Certification

All panelists agreed that the certification and accreditation processes posed some of the key challenges in bringing new face masks rapidly to market.

"It's such a new industry and there is no standard for reusable masks," Schindler said. "In the USA, there are six different categories which all overlap, so things are not very clear. Meanwhile people are using everything from N95 masks to the tops of t-shirts as face coverings.

"We were fortunate to get in early, and to work with Nelson Labs – one of the two or three labs in the USA able to certify masks – but as you can imagine they suddenly had a massive backlog, so any iteration or change we wanted to follow back through our testing partners sometimes required between one and two months to get our data back, so it hasn't been as easy as in normal times.

"Forecasting has also been a nightmare since one day we could be asked by the US government for half a million masks for the following day, and the next day zero, and nobody knows how long this pandemic is going to last."

Guidance

"For PPE there are specifications but there was nothing on general face coverings at the start," Murray said. "Centexbel was a really important partner for Vita, but there's a lack of guidance on materials. The WHO issued guidelines but then France and Belgium brought out their own national standards.

"Now, since June, CEN (the European Committee for Standardization) has a working agreement for face coverings which is very helpful and we've been promoting that, but there's also a lack of guidance on the materials that are actually being used in the masks."

Lack of unity

Van de Loo said that at the the height of the pandemic, another issue was the lack of unity between EU countries.

"It's still not clear where we are now," he said. "Every country is making its own regulations so we have 27 different solutions, which is a real issue. We as an industry need to better this. Surgical masks are also classed as medical devices, so on a certification process, two separate industries with different supply chains have been involved. Meanwhile, there is still no agreement on what is the best protection for the population at large."

The impact on the lungs of front line workers wearing face masks for up to eight hours is also currently unknown, he added, with FFP2 experts judging four hours to be the maximum such a mask should be worn.

> "Buyers are again looking at China's prices and expecting to pay what they did before the pandemic."
>
> *Sebastian van de Loo, Gherzi*

"There is also consumer perception to be taken into account," Schindler said. "People are not used to masks and complain of finding it hard to breathe. Making masks more breathable is a trade off with filtration efficiency. Should efficiency by 95%, or will 90% suffice for consumer products? It's really not clear, but it really doesn't matter at the end of the day if people won't wear them, and wearing them has also become something of a political issue in the USA, which is a problem. We're creating a mask infused with moisturiser as one idea to encourage people to wear them. It provides protection but also has a cosmetic benefit for the werarer."

Here to stay

Discussing return on investment in one or two years' time, Murray said he believed that face masks are here to stay and will become much more a part of life in the West.

"What we've seen with the testing we've done with Vita Shield, is that there's a lot more technology runway to go at, and PPE can be significantly improved from where it is today. Consumers are also confused. At the moment people could be buying anything at all."

Van de Loo observed that the healthcare buying organisations would be the key to ensuring the longevity of the FFP face mask supply chains that have this year been established in Europe and the USA.

"At the height of the pandemic, prices were sky high, but now they are normalising and these buyers are again looking at China's prices and expecting to pay what they did before the pandemic," he said. "They do not care that we have EU labour costs, have to follow government rules and achieve the proper certification. They are buyers, they have their Excel spread sheets and at the end of the year they want their bonuses.

"Governments will argue that the healthcare systems are privatised so have to provide their own goods, so again there is no unity. If price is the only deciding factor, we will see a lot of the initiatives that have been started begin to fade away in the next two years and we will see a lot of bankruptcies in this area. We need to find business models that will support these supply chains."

Impact

One other key issue is of course, is the environmental impact of face masks.

"We already faced the same problem in the hygiene industry in respect of single-use disposable products like diapers," said Kniehl. "We have to take the learnings from the hygiene market in respect of more environmentally-friendly fibres and develop stable processes for them in the labs. In the long run we need to be producing masks that will protect not only people but the environment. There's no team thinking on how we get to closing the loop, and it needs one unified supply chain working together to address this issue."

"The latest report I read said there are 129 billion face masks being used every month and if they're all single use or have to be changed every three-to-four hours as we've discussed, that number could be even higher," said Murray. "To have something that is safe, workable, reusable and eventually recyclable – which can be designed into product development – is really important. It poses many challenges but I think ultimately, with the amount of waste this mask wearing is going to generate, we as an industry have to find a solution." **SNW**

Clean Air Curtain captures and kills Covid-19

A US firm has developed a state-of-the-art process for producing the cleanest air possible while addressing the aerosol transmission of pathogens.

A New Hampshire start-up company has designed and developed a patented air cleaner that can play a critical role in adapting to life in the age of Covid-19.

Air Cleaners Inc. – formed by airflow experts from the semiconductor clean room and data centre industry – was created to address aerosol transmission of pathogens using the experience and insight of its founders based on their decades of work in modelling airflows in mission-critical facilities.

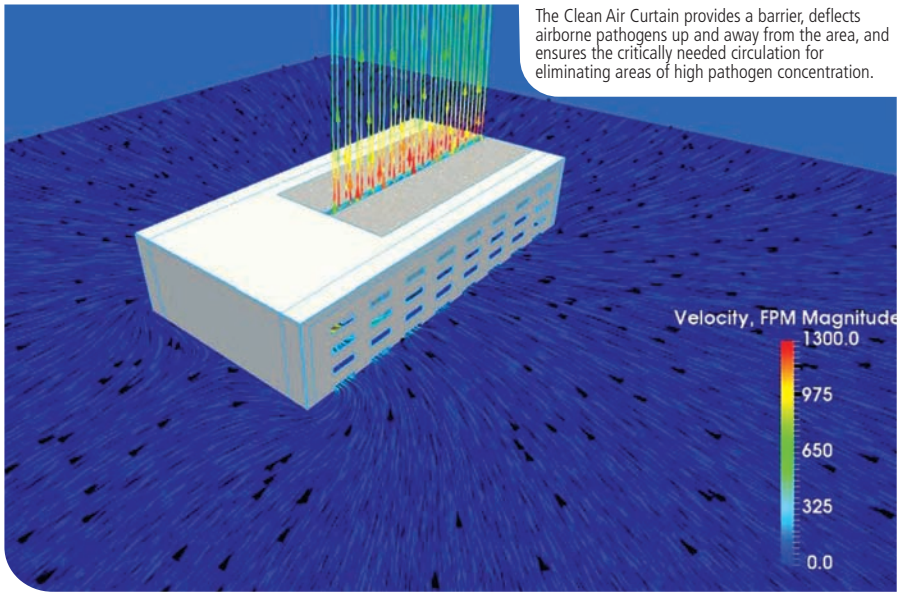
The company's Clean Air Curtain combines HEPA nonwoven filters and ultraviolet germicidal irradiation (UVGI) with an "air curtain" high velocity exhaust to create a separation in local indoor airspaces.

This combination represents a state-of-the-art process for producing the cleanest air possible while providing many unique and significant advantages.

Computer simulations performed on behalf of Plymouth General Dentistry in New Hampshire showed a 95% risk reduction in airborne pathogen transmission with the Clean Air Curtains in place.

"We are thrilled to be one of the first recipients of these new Clean Air Curtains," said Dr Joan Kirschner of Plymouth General Dentistry in New Hampshire. "We have deployed several of them at our practice and its an investment we are pleased to make on behalf of our patients and staff.

"We have an urgent need to remove pathogens, pollutants, and particulates from the air that we breathe and clean our indoor air now," said Chris Ames, Air Cleaners COO, "Our technology produces the cleanest air humanly possible – the HEPA filters capture 99.995% of particles, and the UV kills them within seconds. The high velocity vertical plume generated from the Clean Air Curtain provides a barrier, deflects airborne pathogens up and away from the area, and ensures the critically needed circulation for eliminating areas of high pathogen concentration. No other device has ever combined these multiple benefits."



The Clean Air Curtain provides a barrier, deflects airborne pathogens up and away from the area, and ensures the critically needed circulation for eliminating areas of high pathogen concentration.

The Clean Air Curtain is complementary to local HVAC systems, since many buildings are without whole-building HVAC systems, or have inadequate fresh air ventilation. In these cases, the best method of clearing the air of pathogens is to use portable filtration devices.

As part of the effort to reduce risk for as many as possible, Air Cleaners Inc. is teaming up with AASA – the USA's national organisation for school superintendents and educational leaders – to help public school districts across the nation ensure a safe return to classes.

Compelling scientific evidence indicates that the primary method for Covid-19 transmission occurs via small-particle aerosols, which can linger in the air for hours. For many small businesses, the only way to address this issue is by local air filtration. Moving into the winter months, the need for filtration of indoor air is vital to suppress the transmission of indoor pathogens like Covid-19.

In August, the US National Academy of Sciences held a two-day workshop on aerosol transmission of Covid-19. Their conclusions clearly indicate the extremely small droplets released during breathing, talking, singing and shouting – referred to as aerosols – can remain in the air for hours, and are a primary vector for the infection. **SNW**

PPE progress continues apace

Companies throughout the nonwovens supply chain are continuing to provide a range of new PPE developments in the ongoing fight against the coronavirus pandemic.

A key development in the last two months comes from a firm not usually associated with the nonwovens industry. A proprietary surgical face mask developed by activewear and hosiery giant HanesBrands, along with North Carolina State University, the University of North Carolina at Chapel Hill and UNC Health has been authorised by the US Food and Drug Administration for use by health care professionals as personal protective equipment.

The two-ply, single-use surgical mask features a unique fabric developed by NC State's Nonwovens Institute combined with a fit design created in collaboration with UNC-Chapel Hill and NC State biomedical engineers and UNC Health infection prevention experts.

It uses a duckbill shape for better breathability, a wire nosepiece and foam insert to enhance a contoured fit, and placement of stretchable straps for a secure fit. UNC Health tested the masks to assure they meet FDA particulate filtration standards and OSHA respiratory protection program requirements.

"We are delighted to have this mask added to the FDA's Emergency Use Authorization for surgical masks during the COVID-19 pandemic," said Mike Abbott, HanesBrand' director of research and development. "It is a testament to the ingenuity and collaboration of our university partners and our R&D team to quickly develop a much-needed mask that is high quality, affordable and comfortable for health care professionals."

The Hanes mask was added to the FDA Emergency Use Authorization after meeting FDA requirements.

The FDA issued its Emergency Use Authorization for surgical masks in response to concerns relating to the insufficient supply and availability of disposable single-use surgical masks that provide a physical barrier to fluids and respiratory droplets.

The use of unique spunbond fabric developed by the Nonwovens Institute eliminates the need for a third filtration layer for cost efficiency and filtering effectiveness. The spun-bond fabric is composed of two different polymer materials to make a single fibre that has significant strength and bulk that is as effective in filtration as current materials on the market.

The Hanes mask was added to the FDA Emergency Use Authorization after meeting FDA requirements for fluid resistance (ASTM F1862), flammability performance, particulate filtration (ASTM F2100), and breathability (ASTM F2100).

UNC Health's testing, supported by the UNC School of Medicine Center for Environmental Medicine, Asthma, and Lung Biology and the US Environmental Protection Agency Human Studies Facility in Chapel Hill, demonstrated the masks exceeded expected performance levels and has used the masks in targeted clinical settings.

"We provided the Hanes mask to clinical areas concerned with protection during specific clinical encounters where N95 respirators are not recommended but the risk of Covid-19 exposure is perceived to be high," said UNC Health's Dr. Emily Sickbert-Bennett, director of infection prevention at UNC Medical Center in Chapel Hill. "The Hanes mask made these providers feel safe and well

protected. I expect we will broaden use of the Hanes mask given the degree of protection it provides."

The company is selling the surgical masks to health care organisations for use by professionals in health care settings.

In accordance with the FDA surgical mask Emergency Use Authorization, HanesBrands' disposable, single-use surgical masks:

- Have not been FDA cleared or approved.
- Have been authorized by FDA under an EUA for use in health care settings by health care personnel to provide a physical barrier to fluids and particulate materials to prevent health care personnel exposure to respiratory droplets and large particles during surgical mask shortages resulting from the COVID-19 pandemic.
- Are authorized only for the duration of the declaration that circumstances exist justifying the authorization of the emergency use of medical devices, including alternative products used as medical devices, during the COVID-19 outbreak, under section 564(b)(1) of the Act, 21 U.S.C. Section 360bbb-3(b)(1), unless the authorization is terminated or revoked sooner.

In accordance with the FDA face coverings Emergency Use Authorization, HanesBrands' government cloth face coverings and consumer face masks:

- Have not been FDA cleared or approved.
- Have been authorized by the FDA under an EUA for use by health care professionals as personal protective equipment to help prevent the spread of infection or illness in health care settings and by the general public to help slow the spread of the virus during the COVID-19 pandemic.
- Are authorized only for the duration of the declaration that circumstances exist justifying the authorization of the emergency use of medical devices, including alternative products used as medical devices, during the COVID-19 outbreak, under section 564(b)(1) of the Act, 21 U.S.C. Section 360bbb-3(b)(1) unless the authorization is terminated or revoked sooner.

Anti-fraud

3M has expanded its global anti-fraud and price gouging activities as it looks to ensure the continued safe supply of its personal protective equipment.

The company has launched an aggressive legal effort to stop profiteers who are attempting to take advantage of the demand for 3M products used by healthcare workers and first responders. Building on this work, 3M has now established hotlines around the world to report suspected fraud and has created online resources to help spot price-gouging, identify authentic 3M respirators and ensure products are from 3M authorized distributors.

The company says it has now investigated more than 7,700 fraud reports globally, filed 19 lawsuits, and has been granted nine temporary restraining orders and seven preliminary injunctions. More than 13,500 false or deceptive social media posts, over 11,500 fraudulent e-commerce offerings and at least 235 deceptive domain names have been removed. 3M has been awarded damages or has received settlement payments in seven cases, with all proceeds being donated to COVID-19 related charities.

3M is a global company with factories that produce respirators and other critical products needed to fight COVID-19 in the U.S., Europe, Latin America and Asia.

It has insisted that it has not, and will not, increase the prices of its respirators as a result of the pandemic. To combat increased counterfeiting and online fraud during the COVID-19 outbreak, 3M is working with law enforcement and customs agencies in every region of the world. It is also engaged with many major e-marketplace operators to detect and disrupt fraudulent and counterfeit respirator offers, including Amazon, Alibaba, Mercadolibre, Lazada, eBay, Flipkart, Shopee, Made-in-China and several others.

In particular, since the pandemic began, 3M has worked with customs and law enforcement agencies around the world to seize approximately 3.5 million counterfeit respirators, either as the products are moving through customs, or in targeted raids against suspected resellers and manufacturers of counterfeit products.

In Latin America, for example, 3M has worked with customs agencies in more than 15 cases to seize counterfeit respirators being imported into the region from other parts of the world, with several of the seized consignments containing more than 10,000 counterfeit respirators.

In the United Arab Emirates, 3M has worked with police and the Dubai Department of Economic Development to seize over 600,000 counterfeit respirators.

In Vietnam, meanwhile, a 3M investigation led to a raid and seizure of more than 150,000 counterfeit respirators. The Hanoi and Ho Chi Minh City Market Management Bureaus also seized the manufacturing equipment used to make the fake respirators.

In Europe, 3M is fighting multiple cases of fraud involving bad actors using .nl, .uk and .pl domain names intended to deceive buyers with offers of nonexistent or fake 3M respirators. Other scams include using the names of 3M employees in fake invoices and certificates to claim a relationship to the company.

3M says it is also taking legal action and is working with law enforcement through the European Union.

In India, 3M is working with law enforcement agencies in multiple states to investigate and raid manufacturing operations producing counterfeit N95 respirators, and resellers offering counterfeit N95 respirators to the public, seizing fake products and holding bad actors responsible.

In South Africa, 3M is investigating numerous cases of fraud and the sale of counterfeit respirators. In two recent cases, South African customs seized over 100,000 counterfeit 3M respirators.

Thermobonding

Elsewhere, thermobonding techniques perfected over many years in the production of interlinings are the key to

New entirely transparent face masks now available from Chargeurs brand Lainière Santé.

the new entirely transparent face masks now available from Chargeurs brand Lainière Santé.

The masks feature a washable, anti-fog and anti-projection "window", made with technical composites, thermobonded to the fabric rather than sewn, to ensure they are completely waterproof.

The Lainière Santé masks are designed to make everyday living easier for people who are hearing impaired, as well as for professionals whose work depends on clear verbal communication, such as speech therapists and teachers. They are also useful for anyone who would like to clearly see facial expressions and no longer lose any of the subtleties or nuances of verbal communication.

Lainière Santé's high filtration masks are meanwhile based on nano filtering membrane technology and coated with an anti-bacterial and hydrophobic treatment to be both reusable and washable.

Expansion

Global hygiene group Essity, meanwhile, is widening the availability of its facemask line to its retail and Professional Hygiene businesses.

During the spring, Essity announced that the Group had developed and started production of facemasks for use in health and elderly care in Sweden. Following further product development and investments in new machines, Essity has accelerated its production capabilities.

Essity has now launched type II (Bacterial Filtration Efficiency 98%) and type IIR (Bacterial Filtration Efficiency 98% and splash-resistant properties) facemasks in several European markets.

Within retail, the facemasks have launched under the consumer brands Tempo, Lotus, Zewa and Colhogar in their respective markets. Face masks will also be offered through Essity's Professional Hygiene business under the leading global Tork brand.

The face masks are developed and produced in Europe and Latin America. Essity will continue the launch in more markets during 2021.

Accredited

As well as PPE products themselves, we have also seen new developments in key research and development. Intertek, a total quality assurance provider to industries worldwide, has entered into a management agreement with Sinopharm Tech to establish an accredited face mask testing laboratory in Hong Kong.

Essity is widening the availability of its facemask line to its retail and Professional Hygiene businesses.

It will provide independent quality assurance services for masks to meet the growing demand for high-quality PPE. Under the agreement, Intertek will be responsible for the design, set-up, accreditation, operations management and maintenance of this advanced testing laboratory.

Since the outbreak of the COVID-19 pandemic, Intertek's team of PPE experts has been providing mission-critical mask testing and quality assurance solutions to mask manufacturers, suppliers and buyers around the world, while also building the company's capabilities and capacity to enable fast and accurate quality checks and faster shipments of medical supplies to combat the coronavirus.

Since February 2020, Sinopharm Tech and its subsidiaries have successively established eight cleanrooms and over 20 mask production lines in mainland China and Hong Kong. The new testing laboratory will be equipped with the capability to test medical face masks against the American Society for Testing and Materials (ASTM) F2100 standard and the European Committee for Standardization EN 14683 standard under ISO/IEC 17025 accreditation.

The facility will provide comprehensive, end-to-end quality assurance services for the Sinopharm Tech masks production cycle, from the testing of raw materials to finished products, allowing them to supply high-quality and regulation-compliant products to the market. It will also offer independent mask quality-assurance solutions to other players in the market.

"This is one of several strategic partnerships we have in place globally for assisting local governments and the industry to upgrade the quality of their PPE manufacturing," said Christina Law, Intertek president of global softlines and hardlines, Intertek "It is clear that health, safety and wellbeing issues are now the number one concern for the entire world and the case for risk-based quality assurance is even greater for everyone. Intertek's expertise in providing total quality assurance solutions for PPE products leaves us ideally positioned to play a critical role in delivering the highest-quality health, hygiene and personal safety equipment. We look forward to working with Sinopharm, as well as other face mask manufacturers throughout the region, to deliver a world-class face mask testing laboratory in Hong Kong."

Respiratory

In direct response to requests from customers, Schott & Meissner has rapidly developed a new respiratory face mask manufacturing machine.

With an annual turnover of €23 million in 2019, the company has specialised in thermal and air-through bonding technologies for nonwovens production for the past 35 years.

Speaking during the latest in a series of webinars organised by the textile machinery branch of Germany's VDMA, Schott & Meissner sales director Heiko Irlbacher said the company's new machine can produce FFP1 and 2, N95 or KN95 foldable face masks in up to six layers.

The masks are based on configurations of spunbond and meltblown, along with a filling material for enhanced comfort.

The system is modular for fast erection, with ultrasonic bonding and Siemens PLC 57-1500 controls.

"We employ a double sonotrode material and cooling for long-lasting ultrasonics, to increase the lifetime of the product," Irlbacher said. "In-line printing is an option, as is upgrading to clean room conditions."

Production speeds vary depending on whether the mask is being equipped with ear or head loops and design and materials specifications, to a maximum of 48,000 over a three-shift system for masks with head loops, and 75,000 for ear loops.

In addition to the new machine, Schott & Meissner's long experience and contacts within the nonwovens industry have proved crucial in 2020.

"We have a big network of nonwovens manufacturers and this year have been able to help mask manufacturing companies – many of them newcomers – to acquire the necessary meltblown and spunbond materials in order to get up and running," Irlbacher said.

N95 respirators have also been the subject of development at technical textile specialist Shawmut and The Fallon Company who have jointly announced the creation of a new US-based manufacturing operation.

A new Reicofil meltblown line will be installed in an expanded facility based in West Bridgewater, Massachusetts and will enable end-to-end production of up to 180 million masks per year. Additionally, the operation is expected to create as many as 300 new jobs in Massachusetts.

Shawmut and The Fallon Company have jointly announced the creation of a new US-based manufacturing operation

The new effort will also be supported with a US$2.7 million grant from the Commonwealth's Manufacturing Emergency Response Team (MERT), a state-led initiative that has facilitated the production of more than 11 million pieces of personal protective equipment (PPE) and other critical items by manufacturers that pivoted operations to address COVID-19 at the onset of the public health crisis. This is one of 13 grants totaling $6.5 million being distributed to multiple organizations during October, or "Manufacturing Month," to support the production of PPE in Massachusetts.

"The MERT program continues to identify and support successful 'Made in Massachusetts' manufacturers like the Fallon Company and Shawmut Corporation, that will produce N95 masks and other PPE equipment locally, for Massachusetts front-line responders, business owners, and residents," said Governor Charlie Baker. "We are pleased to welcome the expansion of this manufacturing facility in Massachusetts and appreciate the role these companies are playing in the Commonwealth's fight against COVID-19."

The operation brings together two well-established, successful family businesses to serve as one of only a handful of high-quality mask manufacturers in the U.S. The West Bridgewater facility will extend existing Shawmut manufacturing capabilities, which include medical gowns, to add polypropylene melt blown extrusion and mask conversion capabilities to create respirators, shoring up the U.S. healthcare supply chain with domestic production.

The line was fast-tracked from Reicofil on an expedited timeline.

In addition to a financial investment by Joseph Fallon, CEO of the Fallon Company, the effort will be supported by President Michael Fallon and the company's development, legal, and construction teams. Funds will support infrastructure upgrades, utility improvements, and capital investment to

Schott & Meissner sales director Heiko Irlbacher., speaking during the latest in a series of webinars organised by the textile machinery branch of Germany's VDMA.

Shawmut's manufacturing facility in West Bridgewater.

"With all that's at stake right now, we must shore up domestic manufacturing of lifesaving personal protective equipment for the people whose lives are at risk," said Joe Fallon, the initial investor in the new facilities. "So this isn't just about making masks here in the U.S., it's about ensuring we have the equipment needed to keep our frontline workers safe and in a position to take care of people over the long term."

In addition to having full control of the manufacturing process to ensure ongoing quality and safety and eliminate potential price gouging, domestic production will allow first responders and medical personnel to conduct fit testing in the factory, as well as allow for rapid prototyping and testing of future PPE products, the companies said.

Shawmut, which has decades of experience in the healthcare sector, is currently producing isolation gowns and surgical barrier fabrics, and will now be producing high-quality FDA- and NIOSH-approved N95 masks made of meltblown nanofibre material. The company plans to start with an initial run rate of five million masks per month, gradually building up to producing 15 million masks per month.

"These health risks are not going away. We need to plan ahead to ensure our state and country never run out of N95 masks again," said Shawmut CEO, James Wyner. "Shawmut is proud to be partnered with Joe and others at the Fallon Company to bring this advanced PPE manufacturing investment to Massachusetts."

Collaboration

A successful collaborations in Finland, meanwhile, has seen Suominen Corporation, Screentec Oy and TrueMed Oy, come together to produce high-quality respirators with verifiable authenticity.

Finland, with no domestic facemask production, had difficulties sourcing high-quality masks at the beginning of the COVID-19 pandemic.

Nonwovens manufacturer Suominen was one of the companies that promptly reacted to the difficult situation. In an ultra fast-tracked innovation process Suominen and its partners developed a novel nonwoven, Fibrella Shield, suitable for use in the manufacturing of respirators.

The TrueMed Scanner developed by Suominen and TrueMed.

The nonwoven, developed in only a few months, has passed the European Standard EN 14683:2019 Type II requirements in terms of filtration efficiency and pressure drop.

At the same time that Suominen was developing the new material, Screentec Oy – a renowned producer of medical electrodes and human-machine interfaces for demanding environments – decided to start production of high-quality face masks at its Oulu works. After an exceptionally fast installation phase, the new production line was ready by late summer.

"The common aim, a fully domestic supply chain for high-quality face mask production, was a natural starting point for our cooperation with Suominen. The plan is that in the future we will mainly use Suominen's Fibrella Shield in our face masks," says Screentec's CEO Antti Tauriainen.

Suominen has also been working with TrueMed Oy, a Finnish start-up. TrueMed has developed an AI and machine vision-based non-additive solution that is used to detect original and counterfeit medicines and medical products.

The aim of the cooperation between the three companies is to be able to confirm the authenticity of the masks and the nonwoven used in them – in this case, Fibrella Shield – and therefore guarantee end-user safety. The cooperation also aims to produce important inventory information for the customer, for example, information about expiration days or how many masks that have been used.

"Determining if the product is genuine or a counterfeit is done through our mobile phone app, TrueMed Scanner," explained TrueMed's CEO Jyrki Berg. "We provide Suominen an identification process and mechanism that can detect the product authenticity on the fibre level of the nonwoven material. Suominen Intelligent Nonwovens utilizes TrueMed's proprietary AI and machine vision platform. At the same time, we can read all the necessary codes and markings on the product and it's packaging."

"By combining the deep know-how of the three companies, we are able to offer our customers high-quality face masks with verifiable authenticity as well as the ability to follow the inventory data," added Suominen's CTO, Markku Koivisto.

"In the future many of these kind of technical innovations, for example related to the end-users safety, smart supply chain data, carbon footprint information and so on, can be taken into use with Suominen Intelligent Nonwovens."

This joint development project was also funded by Business Finland research and development funding. **SNW**

Contract manufacturers deliver timely reshoring support

Kevin Young, vice president of Corporate Development & Medical and Ralph Tricomi, Market Development and Strategy Manager at Web Industries discuss how contract manufacturers have been able to deliver timely re-shoring support to PPE OEMs during the coronavirus pandemic.

From the very outset of the COVID-19 pandemic, U.S. and European manufacturers of nonwoven personal protection equipment (PPE) faced nearly overwhelming production challenges.

Governmental calls to reshore PPE manufacturing from existing Asia-based sources disrupted long-established supply chains, leaving OEMs ill-equipped to meet coronavirus-fueled demand for nonwoven products. Components for face masks and shields, medical gowns and aprons, barriers and curtains emerged as critical nonwoven PPE needs.

Reshoring is a complex, multidisciplinary enterprise that affects virtually every corporate department. Engineering and technical staffs, for example, must coordinate transfers of technology and ensure that product quality remains consistent across supply sites. Logistics has to coordinate the interactions of newly formed supply networks. Finance and accounting must calculate the costs associated with every option. And legal needs to oversee compliance with new government mandates and regulations. Even marketing and product management are involved.

Input from all departments addresses a host of issues. For example: what is the most seamless way to bring production activities home? How can quality be maintained during the process? How much demand for nonwovens PPE is expected? How long will that demand last?

To reconstruct their supply chains, nonwovens OEMs began the cumbersome task of transferring their far-flung manufacturing operations and supply networks from Asia to locations that met government mandates. The practice promised to give OEMs greater

CMOs offer material converting and handling expertise to PPE OEMs looking to reshore their supply chains.
Photo courtesy of Web Industries.

CMOs often possess customized converting equipment that offers higher capacity and tighter tolerances than off-the-shelf slitting and spooling lines can provide.
Photo courtesy of Web Industries.

control over supply and production in turbulent times. But with estimates of more than a year to backfill the lost capacity, conventional transfer practices proved to be painfully time-consuming,

New supply sources or methods of production were necessary for both competitive and regulatory purposes. As conventional "reshoring" lumbered on, an inconspicuous business model called contract manufacturing would soon play an outsize role.

Contract manufacturing

Contract manufacturing organizations (CMOs) include converters and formatters of nonwoven materials. They can furnish technical know-how, ready capacity, and a flexible partnering approach. With a unique selling proposition of "taking the 'cumbersome' out of reshoring," CMOs are steadily gaining favour as an alternative to conventional reshoring practices.

Deciding whether to outsource nonwovens PPE reshoring to a CMO or expand in-house manufacturing capabilities and create a new supplier partner network is a colossal business decision. Time and know-how are key factors to evaluate.

The in-house option offers greater hands-on control, but it also has drawbacks. It can require repurposing existing assembly lines or building one or more new facilities from the ground up. Building new capacity entails capital investment, site acquisition, permitting, construction, validation of machinery and the hiring of employees. The entire process is costly and usually takes more than a year to complete. Only then will the flow of products move smoothly from materials sourcing to on-time customer delivery.

CMOs provide more of a turnkey solution. They are typically prepared to begin manufacturing in just a few months. Their business culture emphasizes flexibility and rapid production ramp-ups. CMOs often have made substantial investments in laser-cutting and other equipment used to process fabric, film or plastic materials. Some have particular expertise in formatting and converting nonwoven materials and focus on the cutting,

CMOs that offer multiple converting and manufacturing technologies from a single location provide reshoring solutions while simplifying material sourcing and supply chains.
Photo courtesy of Web Industries.

slitting and winding operations needed for PPE production.

Most CMOs are experienced with technology transfer among different production facilities. They realize the importance of understanding all aspects of the manufacturing process, including a product's technical specifications, before manufacturing begins. They can help ensure continuity of input materials and oversee coordination among various sites.

Seamless integration between the OEM, contract manufacturer and other supply partners allows OEMs to maintain quality standards that equal or exceed those achieved offshore. It also provides the type of infrastructure that can support high-volume production. Without that infrastructure, it is hard to attain the output levels needed to meet demand.

A recent case

Early in the pandemic, a Web Industries business unit in France responded quickly to a request from a nearby university hospital for single-use medical aprons. These polyethylene aprons are worn by doctors, nurses and caregivers when meeting with patients, taking temperatures and changing IV lines. The company employed high-speed precision formatting equipment to produce prototypes, which were quickly approved by the hospital. Web Industries ramped up production to manufacture 160,000 disposable aprons per day for local hospitals and supplied in protective plastic sheaths that met strict sanitary requirements.

Proven track record

Nonwovens PPE OEMs should consider partnering only with CMOs having a successful manufacturing track record and the potential to become trusted organizational adjuncts. Some of the markers to look for include:

- Certification in ISO standards that demonstrate a high level of manufacturing capability. For example: - Web Industries' Ft. Wayne, Ind. plant has ISO 14001:2015 and ISO 9001:2015 certifications while Web Industries' Boston, Mass. plant is ISO 13485 certified.
- A willingness to partner closely and integrate fully with the OEM and other supply partners.
- Experience in making PPE components is a plus. Some CMOs have expertise in other industries that require precision formatting and cutting expertise that is transferrable to PPE production.
- Ready capacity in the form of manufacturing lines that can be quickly geared up to produce PPE components.

The pandemic demonstrated the benefit of having accessible, domestic sources of supply. For OEMs looking to reshore their operations, contract manufacturers offer an expert, reliable and fast solution. **SNW**

Kevin Young, kyoung@webindustries.com
Ralph Tricomi, RTricomi@webindustries.com

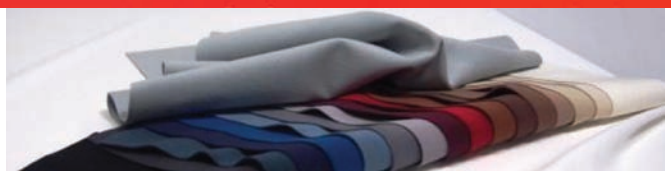
Kuraflex wipes accredited to FSC

TOKYO - Kuraray's Kuraflex Counter Cloth, a nonwoven kitchen wipe designed for hygiene control, has been certified by the Forest Stewardship Council (FSC) as conforming to its certification system, the international standard associated with forest management.

Keen to address environmental issues, Kuraflex wipes are manufactured using rayon fibres, an FSC-certified raw material. The use of rayon in the nonwoven fabric kitchen wipe means that the product is easily laundered and quick to dry, features that make it hard for it to become a bacterial hotbed. Since its release in October 1972, this product has been widely used in supermarkets, restaurants and other industrial food venues.

The FSC certification system is a framework designed to provide consumers with tangible products made of raw materials deriving from forests that are responsibly managed in a manner suitable for environmental, social and economic benefits. At the same time, the system is intended to help raw material producers enjoy sufficient profit.

The Kuraflex Counter Cloth bearing the FSC certified logo on its package will be made available on the market from autumn 2020 onward.



New online platform for Toray's Ultrasuede

TOKYO - Toray has developed a new online portal to showcase Ultrasuede, its highly functional ultra-fine fibre nonwoven fabric with a suede texture.

The latest Ultrasuede Collection features products for the Autumn/Winter 2021-2022 season. The content of the site will be renewed each season, to keep customers up to date with the latest Ultrasuede collections.

The latest offering from Toray includes different fabric types with a number of different thicknesses and with various treatments, along with eco-friendly items using recycled or plant-based raw materials.

These will be introduced in three sections - Thickness Variations, Fashion View, and Eco Story.

Toray developed the nonwoven fabric with its suede texture in 1970 by taking advantage of its ultra-microfibre manufacturing and processing technology. It is manufactured by impregnating the three-dimensionally entangled structure of polyester ultra-fine fibres with polyurethane, coagulating and buffing to form a suede-like surface structure.

Its outstanding texture and high functionality have been highly acclaimed in various fields, including fashion, home interiors, general merchandise and automotive interiors. It is widely recognized as a luxury, high-quality material.

One of its most recent innovations, Ultrasuede BX, consists of the highest proportion of plant-based raw materials.

In this case, the fabric is made of polyester polymerized with ethylene glycol, which is made from waste molasses of sugarcane, and polyurethane, which includes Polyol, made of castor-oil, the vegetable oil pressed from castor beans.

The total content of plant-based raw materials is said to be around 30 per cent.

The new collection can be viewed at https://www.ultrasuede.com/collection

Plant-based liner for Pampers Pure

CINCINNATI - Procter & Gamble has developed a plant-based liner enriched with shea for its Pampers Pure diapers range.

This plant-based liner is designed to help keep a baby's skin hydrated while also serving as a barrier between the skin and moisture in the diaper.

Pure diapers are clinically proven hypoallergenic, combining the naturally derived shea butter emollient with premium cotton, and other chosen ingredients that are gentle for baby's delicate skin. They are made without chlorine bleaching, fragrance, parabens, natural rubber latex and the 26 allergens identified by the European Union as most likely to cause skin allergies.

Each diaper provides an absorbent core with three channels to help ensure even wetness distribution throughout as well as a wetness indicator strip on the exterior of the diaper to flag when full.

"Pampers Pure diapers contain ingredients parents are passionate about and are free from the ones they aren't," said Andre Schulten, P&G Senior Vice President, North America Baby Care. "This is why Pampers Pure diapers are now enriched with shea butter, providing our best in class protection and outstanding skin care and dryness."

Ahlstrom-Munksjö launches WallStar Digital into N. America

STOCKHOLM - Ahlstrom-Munksjö is moving into the North American customized digital printing market with the launch of WallStar Digital, its portfolio of fibre-based solutions for digital printing applications.

WallStar Digital is a directly printable, PVC free, nonwoven portfolio from Ahlstrom-Munksjö, delivering benefits for both printers and end users. For printers, the portfolio delivers media with high dimensional stability and excellent printability. Media is fully ›

New HEPA air filters for air conditioning and ventilation systems

LUDWIGSBURG - Mann+Hummel has developed a new HEPA H13 air filter which, designed to meet the EN 1822 standard, allows operators of air conditioning and ventilation systems in buildings to filter more than 99.95% of viruses, bacteria and micro-organisms from the supply air.

Throughout the winter months, the Nanoclass Cube Pro membrane enables a return to systems using energy-efficient circulation air modes. Infectious virus particles that can attach to aerosols, such as SARS-CoV-2, are therefore said to be reliably filtered out.

The filter is designed to be energy efficient while its new ePTFE medium reduces the pressure drop by 50% compared to conventional HEPA air filters based on micro glass fibres.

Combined with the Mann+Hummel Airpocket Eco filter in energy efficiency class A+, the usual operating cost of a ventilation or air conditioning system barely differs compared to a "pre-Corona" configuration of filters. Moreover, the Nanoclass Cube Pro membrane meets the requirements of fire protection class E according to EN 13501. As the air filter is offered in various standard dimensions, it can be used in almost any HVAC system without problem and without having to convert systems.

With the Nanoclass Cube Pro Membrane for central AC and ventilation systems, Mann+Hummel says it is expanding its portfolio of solutions for virus-free indoor air in buildings. It is therefore positioning itself as a development partner and complete supplier for air hygiene. The mobile air purifiers of the OurAir product line are also part of the program.

Tecnofire success in fire testing for rail applications

BURNSIDE - Nonwoven manufacturer Technical Fibre Products has released fire test data for the use of its Tecnofire technology in rolling stock composites applications.

According to TFP, the results demonstrate Tecnofire's effectiveness in enabling composites manufactured from a non-FST epoxy carbon fibre prepreg to pass key elements of the EN45545-2 rail standard with a HL2 R1 rating.

Tecnofire is a range of intumescent fire protection materials which are designed for use in composite applications and are effective in protecting the underlying structure during a fire, whilst reducing smoke and heat release.

A recent three-year study of these materials, carried out by the University of Nottingham Ningbo China, investigated the performance of Tecnofire for use in composite applications in the rail sector. The study focused on the incorporation of Tecnofire into composites in order to pass fire tests which are part of the EN45545-2 standard required in rolling stock applications for interior panelling (R1).

Three types of composite were investigated; a standard (i.e. non fire, smoke & toxic fume (FST) rated) epoxy carbon fibre prepreg based composite, a standard non-FST epoxy carbon fibre prepreg based sandwich composite and finally, a polyester resin vacuum infused composite window panel for an underground train.

All 3 parts were fabricated and subjected to stringent fire testing to assess their performance to specific EN44545 tests.

The fire tests carried out were ISO 5660-1 (MARHE (kW/m2)), ISO 5659-2 (Ds(4), VOF4 (min) and CIT at 8 min).

The control panels not incorporating the Tecnofire material achieved HL1 (R1), which is the lowest level of performance to EN45545-2. For the 3 different composite structures incorporating Tecnofire, all MARHE (kW/m2), Ds(4), VOF4 (min) results successfully achieved the EN45545-2 HL2 R1 requirement and all CIT at 8 min results achieved the EN45545 (higher rated) HL3 requirement.

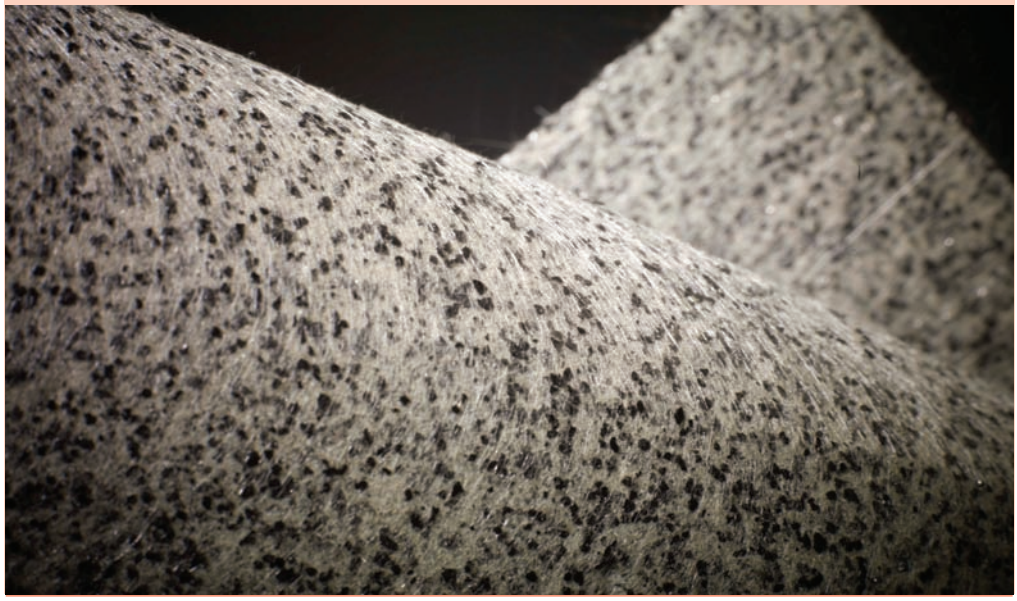
This success, says TFP, demonstrates the effectiveness of Tecnofire in providing the required level of fire protection to the structure; incorporating a layer of Tecnofire intumescent veil improved the FST performance of the composite part from HL1 to HL2 (R1). HL2 R1 rating makes the composite parts suitable for use in interior panelling in the majority of trains currently manufactured.

In the case of the window panel, the results were particularly notable, as the fire test results were all very close to the HL3 rating and the part also surpassed all the mechanical requirements for use in an underground train.

In addition to its successful performance in fire testing Tecnofire offers a number of advantages; it is easy to incorporate at the surface of the composite before processing, is readily infusible, requires no additional processing steps and the required mechanical properties can still be met. It also potentially removes the need for specialist fire retardant resins to be utilized. It has been used extensively in a range of industries and has been specified for use in utility poles, bridges, fire doors, aircraft and mass transport applications such as buses, trams and trains following successful fire testing.

A more detailed discussion of the EN45545-2 results was presented as part of a Composites World webinar titled "Enabling Composites to Pass Stringent Fire Tests Using Advanced Nonwovens" in November.

More details can be found at www.tfpglobal.com.



compatible with Latex, UV, and laserjet printers. For end users the media is PVC free, has a luxurious touch and is simple to install and remove, facilitating the change and use of new designs.

"40+ years of experience serving the North American wallcoverings market and an unique set of various technologies put us in a very good position to meet the demands of the North American digital wallcover market," said Pierre Mary, vice president, Nonwovens. "The expansion of WallStar Digital into North America will help establish Ahlstrom-Munksjö as one of the leading suppliers to this market."

Demand for customized digital printing is growing, led by changing consumer demand, where personalization is extremely important. Digitally printed wallcoverings can be used to change a room quickly, whilst at the same time add impact through use of personalized designs. Environmental aspects are also of high importance, as consumers in North America become more aware of sustainability and the type of materials they wish to use. Consequently, digital printers are looking for PVC free media which allows printing in small, unique, personalized quantities.

"As an leading player in Europe, Ahlstrom-Munksjö already has strong expertise in the digital printing market, " added Jean-Loup Duran, sales manager, Digital. "Launching Wallstar Digital in the US is a major step for us and I am looking forward to introducing this exciting product offering in the US market."

Meanwhile, Wallstar Digital nonwovens are also now now suitable for use on

digital printing technology from Xeikon.

The compatibility with Xeikon's technology, which focuses on the colour printing of labels and packaging as well as the graphic arts printing industry, follows a new collaboration between the two companies.

The long-standing cooperation between Ahlstrom-Munksjö and Xeikon gathered pace last year when the nonwoven manufacturer and printing specialist worked together to qualify a range of papers for Xeikon presses. This includes Xeikon's Wall-Decoration Suite. It enables cost-efficient production of high-quality wall decoration for commercial, retail and residential purposes. It consists of five major components: a Xeikon Digital Press, a dedicated workflow, application-specific toners, process optimization tools and pre- and post-press solutions.

ExxonMobil develops new ultra-soft solution for hygiene sector

HOUSTON – ExxonMobil has introduced a new solution to produce nonwoven fabrics with lofty thickness, ultra-cushiony cotton-like softness, and a silk-like smooth touch.

Also offering low lint and uniformity, the solution is said to provide a tailored balance of properties for nonwovens used in premium diapers, pant-type diapers, feminine care and adult incontinence products.

A blend of ExxonMobil PP3155E5, ExxonMobil PP3684HL and Vistamaxx 7050BF performance polymer, the solution is processed using bi-component (BiCo) spunbond technology from Reifenhäuser Reicofil, an acknowledged market leader in complete nonwoven, meltblown and composite production lines.

"Working collaboratively with Reifenhäuser Reicofil has resulted in a new benchmark for high loft, soft nonwovens to meet growing market demand globally, and particularly in Asia Pacific," said Olivier Lorge, Global Market Manager, Polypropylene, Vistamaxx and Adhesions Business, ExxonMobil. "Addressing the hygiene market's desire for innovative, differentiated soft nonwovens, this solution will unlock business opportunities for ExxonMobil customers across the value chain."

According to Lorge, by adjusting the formulation, nonwovens can be tailored to meet the needs of different hygiene product components such as the bellyband, back sheet and top sheet used in baby diapers, feminine care, and adult incontinence products.

Offering the thickness required for cushiony softness, the nonwoven fabric is described as resilient as it is lofty, while delivering good drapability, uniformity for consistent products and low lint for surface stability. Formulation variations allow nonwovens to be produced with a different feel to meet the needs of the application, from a cottony touch to a silky touch.

Spunbond fabrics can be manufactured that are up to 15% thicker for enhanced protection compared to other BiCo spunbond high-loft solutions. Plus, 80% of the thickness is maintained after being placed under load for an extended period.

"Collaboration can deliver true innovation, as this cutting-edge, high loft solution proves," added Tristan Kretschmann, R&D Manager, Reifenhäuser Reicofil. "Delivering enhanced performance, this solution is an ideal and cost-efficient replacement for carded fabrics that will enable brand owners and converters to create innovative solutions to meet different application needs.

Sani wipes submitted for EPA approval

WOODCLIFF LAKE - Sani Professional, the food safety division of Professional Disposables International (PDI), has announced that two of its wipes products have demonstrated effectiveness against the SARS-CoV-2 virus. The effectiveness of the No-Rinse Sanitizing Wipes and Disinfecting Wipes was confirmed following tests conducted by Microbac Laboratories, a 3rd party testing laboratory.

Microbac released the following test results against the SARS-CoV-2 virus: No-Rinse Sanitizing Wipes delivered a 3-log reduction against the virus in 1 minute while Disinfecting Wipes demonstrated a 3-log reduction against the virus in 3 minutes.

These latest results are currently being evaluated by the EPA.

"As a company deeply rooted in the prevention of community-acquired infections (CAIs), we are committed to provide our customers with products that improve food safety and public health," said Esperanza Carrion, vice president and general manager of Sani Professional. "Our mission continues to offer the general public a safe experience in away-from-home settings. Currently, our Disinfecting Wipes and No-Rinse Sanitizing Spray are both on the EPA's List N and the testing results from Microbac affirming efficacy against the Covid virus will provide operators with products they can trust alongside stringent preventive measures."

The Centers for Disease Control and Prevention (CDC) and other health agencies and officials continue to recommend cleaning and disinfecting frequently touched surfaces at least daily, or as much as possible and as required by food safety requirements1 using products listed on EPA's List N: Disinfectants for Use Against SARS-CoV-2 as a best practice measure to help prevent the spread of COVID-19 in community settings.

Fibroline partners with Euro Wipes

ECULLY – Fibroline has signed an exclusive partnership for the development of new eco-friendly impregnated products with Euro Wipes, a leading French manufacturer of wet wipes and impregnated cotton pads.

Fibroline has developed the technology to enable the dry formulation of wipes, enabling the impregnation of new actives which to date have been difficult to integrate into a lotion.

This is making it possible for Euro Wipes to develop more natural formulae, without preservatives and solvents, while at the same time significantly reducing water consumption.

Using electric fields, Fibroline's patented technologies allow the distribution of all types of powders into porous structures such as textiles, nonwoven, foams or papers.

"These patented solutions avoid the use of solvents or water, enhancing compliance with environmental standards," said Fibroline CEO Jérôme Ville, "Our R&D centre is the ideal location for partners who are seeking to assess our solutions and secure their projects before industrial launch. We have invested heavily over the past two years to offer the latest generation laboratory and pilot units for all of our technologies."
www.fibroline.com

Differentiating with Dinamica

DÜSSELDORF – The Mercedes-Benz AVTR concept car, the Volkswagen ID.3 and the new Audi Q2 are among new vehicles being furnished with Miko's Dinamica recyclable microfibre suede fabrics, as tightening environmental regulations push OEMs into achieving ambitious environmental goals.

The automotive interior is becoming a decisive factor in car buying decisions according to survey conducted by Asahi Kasei Europe, with demand for premium materials that are also sustainable growing and the use of real leather likely to fall drastically.

Miko is an Italian subsidiary of US-based Sage Automotive Interiors (a member of the Asahi Kasei Group) and its Dinamica is mainly employed in seats and headrests, headliners, door panels and steering wheels. The recycled polyester Dinamica is made from is derived from both recycled fibres and PET bottles which reduce energy consumption and CO2 emissions into the atmosphere during production by 80%, compared to the traditional polyester production process.

Dinamica is produced using a proprietary water-based manufacturing process in which the fibres are compacted to make them elastic and resistant, with no harmful chemical solvents employed. The use of neutral, non-toxic dyes is a further example of the natural approach adopted.

Miko and Asahi Kasei patented the Dinamica raw material process and further actions aimed at supporting sustainable development have followed, such as quality and environmental certifications and a CSR Report focused purely on sustainability.

Other recent vehicles to sport Dinamica interiors include the Taycan – the first full-electric car by Porsche – as well as the latest Corvette C8 Sting-ray, and the Jeep Grand Wagoneer. *https://dinamicamiko.com*

Nonwovens with silver for filtration market

NORCROSS - Advanced material specialist Noble Biomaterials has been working with fellow US-based firm PureAir Filtration to develop antimicrobial filtration products equipped with silver technology.

FiberShield, which can be used as an added fabric layer in particulate filters to help fight microbes amid the COVID-19 pandemic, is made of a proprietary blend of nonwoven nanofibers that are impregnated with antimicrobial Ionic+ silver technology.

The antimicrobial fabric can be used in any particulate filter and is said to be the only one on the market to offer such flexibility to filter manufacturers. FiberShield with Ionic+ technology has been tested and proven effective by independent testing laboratories to inactivate over 99% of specific pathogens.

PureAir has also launched a second product in its antimicrobial line called Microbe-sorb, an adsorbent media that utilizes a proprietary blend of compounds to activate, enhance and deliver the strong antimicrobial properties of permanganate, a material commonly used in medical practices since the early 1800s. Independent laboratory tests show Microbe-sorb inactivates over 99% of microbes on contact.

Both products are aimed at mitigating the impact of the COVID-19 pandemic by focusing on improving air quality through gas, odor and pathogen removal.

Noble Biomaterials, Inc. is a key supplier of antimicrobial and conductivity solutions for soft-surface applications. The company produces advanced material technologies designed for applications in the performance apparel, healthcare, industrial and emerging wearable technology markets.

Its flagship brands include X-Static, Ionic+ and Circuitex.

Kub launches cotton wipes

Kub Wipes has launched both cotton dry wipes for skin cleansing and alcohol-based wipes for deep cleaning hands and the home.

Kub Wipes' 100% Premium Cotton Dry Wipes are made with pure, 100% premium cotton fibre and are free from liquids or chemicals while also being antibacterial and antifungal. Larger than traditional tissues, Kub Wipes cotton dry wipes are said to be more durable, and more absorbent and are suitable for newborns and sensitive skin.

Kup Wipes' 75% Alcohol Wipes consist of 75% plant-based alcohol with aloe vera extract to ensure deep clean without harming skin; are made with nonwoven fabric. The alcohol wipes are ideal for cleansing hands, objects, and surfaces such as handles and doorknobs, electronics, handheld devices, toys and home surfaces.

Planera introduces flushable pads

LONDON - UK personal hygiene company Planera has created a flushable and biodegradable sanitary pad, a development that should positively impact the level of waste the industry produces and fails to dispose of each year.

Planera's pads have been successfully and independently tested in accordance with the UK's water industry specification for flushability testing (WIS 4-02-06).

The pad breaks down in two parts. First, with the hydraulic action of the toilet flush, the layers of the pad get pulled apart and can start making its way down the drain line. Then, the 3mm cellulose fibres loosen and break apart. These steps ensure that the pad will have disintegrated by the time it reaches local municipal plant and can be treated along with toilet paper and sewage.

Planera sanitary pads are constructed in three layers with a top-sheet made with biodegradable plant fibres that is cushioned to be gentler on the skin. It's naturally absorptive so blood rapidly wicks into the pad's core.

The core works in three stages: wick, lock, block. The wood pulp core rapidly removes the blood from the top-sheet and distributes it across the core. The biodegradable powder then locks the blood as a gel, finally blocking it in place before it even reaches the barrier.

The third layer is the UpFlow Barrier which acts as a sustainable barrier made up of multiple layers each playing an important role to protect from any leakages and be safe to flush. The top of the barrier is impervious to blood and the bottom absorbs any sweat during use, reducing humidity.

People

Shemesh Automation is responding to increased demand for its packaging machinery solutions by expanding its executive team with the appointment of Anna Kingsley as Chief Marketing Officer (CMO).

Kingsley is a multi, major award-winning marketing leader, with 30 years' international business experience. She's worked in marketing for global brands (such as Coca-Cola, Virgin and Match.com), as well as for Dixons (PCWorld/Currys) and different British Government departments. Anna also held Account Director positions at some of the UK's leading agencies as well as at the biggest ad network in the world, JWT (WPP).

Anna Kingsley.

Shai Shemesh, Shemesh Automation's CEO commented: "Ms Kingsley joins us at an exciting inflection point. Anna brings substantial experience, knowledge and leadership in marketing to the role. She has demonstrated a rare ability to combine strategic and blue-sky thinking with creativity and a strong commercial acumen. Anna is a great leader and is vital to our next growth stage. I have no doubt that she will be key in taking the business to new heights in 2021."

Kingsley, Shemesh's new CMO, commented: "One of the many amazing aspects of this job is that I can take a holistic view as well as applying my hands-on experience, in every marketing channel. I'm already enjoying working on a winning-marketing strategy, which I hope will propel Shemesh even further in the global high-end packaging machinery arena."

Glatfelter has announced that Darrel Hackett, President, Bank of Montreal (BMO) Wealth Management – U.S., has been elected to the Board of Directors effective November 1, 2020.

"Darrel brings to the Board a depth of experience from his various leadership roles at BMO and his time in management consulting," said Dante C. Parrini, chairman and chief executive officer. "As Glatfelter continues its transformation to a higher-margin, growth-oriented engineered materials company, we expect Darrel's insight and perspective on capital markets and strategy to be especially beneficial to the company."

In addition to his BMO leadership role, Mr. Hackett currently serves on the Board of Directors for the Art Institute of Chicago, Children First Fund and Chicago United.

Ahlstrom-Munksjö has extended its Group Executive Management Team. Mikko Lankinen has been appointed executive vice president, Corporate Strategy and Development, and a member of the Group Executive Management Team as of October 28 2020. He reports to Hans Sohlström, president and CEO. Mikko is currently chief development officer, Corporate Development. Robin Guillaud has been appointed executive vice president, Innovation, Sustainability and Communication, and a member of the Group Executive Management Team as of October 28 2020. He reports to Hans Sohlström, president and CEO. Robin is currently vice president, Business Development, Filtration & Performance Solutions business area.

As announced in August, Anna Bergquist, executive vice president, Strategy, Sustainability and Innovation and a member of the Group Executive Management Team, has decided to leave the company. Anna is on parental leave during her remaining time of employment.

Following a career spanning nearly 50 years in consumer goods and 24 years with **Nice-Pak International (NPI)**, Michael Staton will be handing over leadership of NPI at the end of the year and retiring from the company in March 2021.

Staton joined NPI in July 1997 and over that time the company has grown from three production lines and 50 colleagues to 24 production lines and over 900 colleagues. NPI is now the largest manufacturer of pre-moistened wipes in Europe with an internationally recognized and respected customer portfolio operating through manufacturing sites in the U.K. and Germany.

Robert Woodall has been appointed managing director Nice-Pak International, and will succeed Staton on January 1, 2021.

Kimberly-Clark Corporation has announced executive leadership changes, effective November 1, 2020. Jeff Melucci, currently senior vice president, Business Development and General Counsel, has been named as chief transformation, business development and legal officer, adding responsibility for the company's transformation roadmap for further building its global organizational capabilities. This expanded role assumes the responsibilities of Achal Agarwal, who has announced his intent to retire at year-end after 12 years with Kimberly-Clark and a nearly 40-year career. Melucci will continue to report to Mike Hsu, Kimberly-Clark chairman and CEO.

In addition, Gonzalo Uribe has been named as president of Kimberly-Clark's Latin American consumer business, and will also report to Hsu, with responsibility for the company's consumer operations across Latin America. He succeeds Sergio Cruz, who has been named to a newly created leadership role reporting to Maria Henry, chief financial officer, focused on strengthening the company's digital business foundation and capabilities.

Thrace Group has announced that Dimitris Malamos, executive member of the Board of Directors, is to assume the duties of chief executive officer of the company and of the group (Group CEO). Konstantinos Halioris, current CEO of the company and the group, remains chairman of the Board of Directors of the company and also assumes the position of chief entrepreneur.

January 2021

20-21
Virtual Elementary Nonwovens Training Course
INDA
Web: https://www.inda.org/events/calendar.php

March 2021

9-12
Virtual Intermediate Nonwovens Training Course
Web: https://www.inda.org

April 2021

OUTLOOK 2021
The world's premier nonwovens personal care and hygiene & wipes products conference
Lisbon
Web: https://www.edana.org/events/outlook/outlook-europe

May 2021

4-7
Techtextil
Frankfurt
Germany
Web: https://techtextil.messefrankfurt.com/frankfurt/en.html

June 2021

9-10
International Nonwovens Symposium
Lyon - Marriott Hotel
France
Web: https://www.edana.org/events/nonwovens-symposium/international-nonwovens-symposium

12-16
ITMA Asia + CITME 2020
National Exhibition and Convention Center,
Shanghai
China
Web: http://www.itmaasia.com

22-26
ITM & Hightex 2021
Istanbul
Turkey
Web: https://www.itmexhibition.com/itm2021/

July 2021

12-15
World of Wipes 2021
International Conference
Atlanta Marriott Marquis
Atlanta, GA
USA
Web: https://www.inda.org/events/calendar.php

19-20
Filtrex Asia
Shanghai, China
Web: https://www.edana.org/events/filtrex/filtrex-asia

22-24
ANEX-SINCE 2021
Shanghai World EXPO Exhibition & Convention Center
China
Web: https://www.asianonwovens.org/news_detail_18.html

August 2021

23-25
Techtextil North America
Raleigh
North Carolina
USA
www.techtextilna.com

September 2021

7-10
INDEX20
INDEX is the world's leading nonwovens exhibition, and a global showcase for the nonwovens and related industries.
Geneva
Switzerland
Web: https://www.edana.org/events/index

30
Circular Nonwovens Forum
This new annual forum creates a platform for an in-depth engagement with stakeholders on challenges and opportunities in the pursuit of a circular economy for nonwovens.
Location: TBC
Web: https://www.edana.org/events/circular-nonwovens-forum

Although every care is taken over the compilation of this diary to ensure accuracy of the dates, these can sometimes be changed due to local circumstances. It is therefore advisable to check with the appropriate organisers before travel arrangements are made.

Kelheim Fibres

KELHEIM FIBRES – THE SOLUTION FOR FEMININE HYGIENE PRODUCTS

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