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Disposables vs. durables

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A great time to be in nonwovens

The US nonwovens sector seems to be in fine fettle.

The latest details from industry organisation INDA show that capacity in the US increased by 39,000 tonnes in 2020 as 51 new lines came online and 22 lines were shutdown.

The eighth edition of the annual North American Nonwovens Supply Report, published by INDA for its members, also reveals that in 2020, North American nonwoven capacity increased to 5.552 million tonnes, a net increase of 0.7% (39,000 tonnes) over 2019.

This growth figure accounts for not only the addition of new lines, but also machine productivity increases and line closures to arrive at a net increase growth figure.

In the last three years, 51 lines have come online and 22 lines have been shut-down. Furthermore, as a result of the pandemic some of the new line additions planned for 2020 have shifted to 2021.

The report also notes that operating rates in 2020 were two-sides of the same coin, as some end-use markets were completely shut-down for a few months, notably building and vehicle construction, and other end-uses were operating full-out, if they could. Producers were challenged by workforce and transportation issues. As a result, the overall operating rate only increased one-percentage-point over 2020.

Moreover, as the operating rate is based upon tonnage, the increased demand for lighter-weight materials – medical apparel and fine-fibre meltblown – affected the total tonnage output, as some lines were running fullthroughput of surface area, but not actual tonnage. North American imports and exports, in tonnage, therefore increased 51.2 per cent and 14.2 per cent respectively year-over-year. Imports were led by China (+97,200 tonnes, +121 per cent) and India (+11,000 tonnes, +37 per cent).

Of course, it should be noted that even with the significant shifts in North American trade dynamics, nonwovens tend to stay where they are produced, with the net trade balance (imports less exports) accounting for less than 10% of the region's capacity.

Releasing the data, Brad Kalil, director of Market Intelligence & Economic Insights, INDA is firmly of the opinion that we are in a business that is expanding faster than the economy as production growth exceeded U.S. real GDP for the seventh consecutive year. Production growth also exceeded capacity growth for the fourth consecutive year.

It should also not be forgotten, says Kalil, that we are in a business that protects and improves people's lives, a factor that has been brought to the forefront recently with the benefits of protective medical apparel, respirators, face masks, and disinfecting wipes, now known by all.

As Kalil notes, this is a great time to be in nonwovens.



Haydn Davis, Editor

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FRONT COVER: Image: © lightsource | depositphotos.com





NONWOVENSNEWS.COM

NatureWorks second plant in 2024

MINNEKOTA – NatureWorks has announced the completion of key milestones for its new fully integrated Ingeo PLA production facility that will open in Thailand by 2024, subject to shareholder approval.

When fully operational, the new plant will have an annual capacity of 75,000 tons of Ingeo biopolymer and will produce the full portfolio of Ingeo grades, for fibres, nonwovens and a wide range of plastics.

The Thailand Board of Investment has now approved the NatureWorks manufacturing project that will be located at the Nakhon Sawan Biocomplex (NBC) in Nakhon Sawan province. The NBC is the first biocomplex project in Thailand established in accordance with the government's bioeconomy policy.



Final detailed engineering is currently underway, and NatureWorks expects to announce further details later this year.

"We are pleased to share these significant accomplishments as part of our next phase for global manufacturing expansion," said Rich Altice, president and CEO of NatureWorks. "The approval and support from the Thailand Board of Investment was a critical milestone on our path toward opening our new facility in Thailand. With both the recently announced capacity expansion at our facility in Blair, Nebraska, and this new manufacturing complex, we can further address the global market demand for sustainable materials and continue leading the development of high-performance applications that capitalise on Ingeo's unique material properties."

The new manufacturing complex will include production for lactic acid, lactide and polymer, making it the world's first polylactide facility designed to be fully integrated. NatureWorks will build and operate all three facilities, having both process and energy integration to increase efficiency of the manufacturing operation dedicated to Ingeo biopolymer production.

In 2002, NatureWorks became the first company to produce PLA biopolymers at commercial scale. In 2013, the company expanded its flagship Blair, Nebraska, facility to an annual total capacity of 150,000 metric tons, making it the largest PLA manufacturing plant in the world. NatureWorks also completed a portfolio of enhancements to the Blair site, enabling the plant to establish a new record production level in 2019.

Techtextil India rescheduled for November

MUMBAI - The Techtextil India trade fair, originally scheduled in September 2021, has now been postponed to November 25-27, 2021 amid concerns over the current Covid-19 situation across the country.

Even as companies look forward to economic revival, the continued difficulties posed by the pandemic makes it necessary for industries to recover, plan and prepare before they can get down to business. The organizers feel that moving the show ahead will allow this additional time and is a necessary step that will in-turn create a healthy business environment when the industry can finally come together.

Raj Manek, executive director and board member, Messe Frankfurt Asia Holdings Ltd., explained: "We are glad to have the support from the industry and our exhibitors whose interests are at the centre of this decision. Exhibitors, just like organisers, are working around undefined parameters which require adequate planning flexibility. We are all committed to putting up a great show!"

A key exhibition in the business calendar, Techtextil India will continue its critical role in highlighting solutions and innovations across twelve key application areas.

The show will open its doors from November 25-27, 2021, at the Bombay Exhibition Centre Mumbai. This will be the first-ever hybrid edition as the trade fair will be held as a physical expo in conjunction with its online event on the same dates.

NONWOVENS NEWS

Dan-Web airlaid line for Domtar

FORT MILL – Domtar Corporation is to add a large scale Dan-Web airlaid nonwovens production line at its Jesup, Georgiabased Engineered Absorbent Materials (EAM) facility.

The expansion will play an integral role in helping the company grow its position as a leading global absorbent materials and technology business offering fluff pulp and airlaid nonwoven materials.

"This expansion is a strategic step towards strengthening our value proposition as an essential partner to absorbent hygiene customers around the world," said Lewis Fix, Domtar vice president, of commercial pulp and airlaid.

With approximately 6,400 employees serving more than 50 countries around the world, Domtar is fully focused on turning sustainable wood fibre into useful products. The company's annual sales are approximately \$3.7 billion

Domtar's EAM facility has been developing and manufacturing absorbent core solutions since 1998. The new machine will be fully operational in 2022.

IDEA spotlights postpandemic global trends

CARY - INDA, the Association for the Nonwoven Fabrics Industry, will highlight global and regional insights from industry thought leaders on the future of nonwoven and engineered materials supply, production capacity and demand at the triennial IDEA conference program March 28-31, 2022, in Miami Beach, Florida.

The conference program will address the pandemic impacts on the global nonwoven supply chain and recovery for China, South America, Asia, North America, and Europe from a diverse group of presenters from Fitesa, INDA, EDANA, China Nonwovens and Industrial Textiles Association (CNITA), and Asia Nonwoven Fabrics Association (ANFA).

IDEA22 is a major industry event for Nonwovens & Engineered Fabrics and is expected to attract more than 6,500 senior-level delegates and 500 exhibitors from myriad industry sectors, including absorbent hygiene, wipes, filtration, medical/surgical products including PPE (personal protective equipment), home & office furnishings, transportation, geosynthetics and building construction sectors from over 60 countries. The 2022 event marks the 21st anniversary of IDEA, with the show originating in 1971. Exhibition and registration details are available here.

During the show, the IDEA Achievement Awards will honor innovations in the nonwovens and engineered materials industry across six categories. INDA, in partnership with Nonwovens Industry magazine will jointly present the awards with emcee hosts Dave Rousse, President of INDA and Rod Zilenziger, President/Owner of Rodman Media Corporation.

The IDEA22 Achievement Awards categories include:)



Nonwovens as art for Suominen

HELSINKI - A sustainable nonwoven fabric from Finland's Suominen has been used to create a public art installation in a Helsinki design centre. The installation by artist and experimental designer Megan McGlynn is set on display in Glasshouse Helsinki, a retail environment that opened its doors to visitors recently. The main material of the installation is from Suominen's sustainable product portfolio: a biodegradable nonwoven made of cellulosic fibres.

The installation is called Geo Pilvi and consists of eight folded structures that hang from the ceiling of Glasshouse Helsinki. "The organic curves of these clouds are created entirely from straight geometry, referencing their surrounding architecture as well as nature," McGlynn described.

The main material used in the installation is 100% cellulosic and responsibly produced nonwoven by Suominen. "The cellulosic fibers are carefully opened and distributed on a web and pure water is used to induce mechanical interlocking to provide an optimal level of strength without any chemical binders or other harmful substances. Water is circulated in the process to minimize the environmental impact and water consumption in the process," said Miika Nikinmaa, manager, R&D at Suominen.

"Working with this material was interesting for me as an artist. It is very thin, strong and tear-resistant. I am very pleased with the combination of strength and translucency of the material," added McGlynn.

"We are very excited about this collaboration. Innovation and sustainability is at the core of everything we do at Suominen, and this installation really shows that with innovative and creative mindset our nonwoven material turns into amazing artwork," said Noora Rantanen, Manager, Sustainability & Marketing.

The installation is exhibited in Glasshouse Helsinki from May 27, 2021 onwards. Glasshouse Helsinki is located at Aleksanterinkatu 13, 00100 Helsinki.

Megan McGlynn is an artist and experimental designer from Philadelphia, USA. She has a Master of Contemporary Design degree from Aalto University and has been living in Helsinki since 2017. McGlynn's artwork is inspired by structures both organic and manmade, and focuses heavily on crisp linework. *Web: glasshousehelsinki.com*

NONWOVENS NEWS

- IDEA Sustainability Advancement Award
- IDEA Equipment Achievement Award Best New Equipment Introduction
- IDEA Roll Goods Achievement Award Best new roll goods introduction
- IDEA Raw Material Achievement Award Best new fibre/ raw material introduction
- IDEA Short-Live Product Achievement Award Best new disposable product using engineered fabrics
- IDEA Long-Life Product Achievement Award Best new

durable product using engineered fabrics

Visit https://www.inda.org/awards/IDEA-Achievement-Award.html for full details.

As part of the registration fee, conference and short course participants also receive an exposition hall pass to connect with exhibitors showcasing their latest innovations and technologies on the IDEA show floor.

For full details about the conference, short courses, or to register, visit www.ideashow.org, T: +1 919 459 3700, info@inda.org.

BontexGeo acquires ABG

ZELE – The BontexGeo Group, a European industry leader in the production and sale of geotextiles for civil engineering applications, is to acquire ABG, a specialist in the development and sale of geosynthetic systems with a market leading position in the United Kingdom.

Through this acquisition, which was completed on 23 April 2021, BontexGeo says it will reinforce its position in the important UK market.

ABG is located in Meltham, situated between Manchester and Leeds, in West Yorkshire.

"This acquisition allows us to strengthen our position in the

UK market and reinforces our commitment to invest in growth opportunities following the carve-out from Low & Bonar plc," said Rob van der Valk, managing director of BontexGeo. "The portfolio and expertise of ABG will allow us to continue to build on our success."

ABG will remain operational under the same name, as part of the BontexGeo Group. Alan Bamforth, the managing director of ABG, will remain in his current position to further manage the company together with his team.

BontexGeo is selling into more than 60 countries worldwide. Typical applications for its products include erosion control in coastal protection, road and railway construction projects, membrane protection in landfills and drainage systems.

NOWOtex GmbH opts for Oerlikon meltblown technology

NEUMÜNSTER – Oerlikon Nonwoven has commissioned a further high-performance meltblown system with ecuTEC+ electro-charging unit at NOWOtex GmbH & Co. KG in Eichenzell, Germany.

The Hesse-based company specializes in needled nonwovens and – with the new system – now also has meltblown nonwovens manufacturing capacities, allowing NOWOtex to



expand its product portfolio. As of now, the company is producing polypropylene filter nonwovens, which are particularly suitable for protective masks. The coronavirus pandemic has not only increased demand for protective masks, the domestic manufacture of these products is now also be promoted and supported by the German Government.

Using the new meltblown system, NOWOtex will in future be manufacturing first-class filter nonwovens that can be used to produce up to 600 million operating room filter masks or 300 million highly-effective FFP2 masks per year. The system has been optimally equipped with the ecuTEC+ electrocharging unit for the production of mask nonwovens. "Thanks to the excellent collaboration, the system has been operating under stable production conditions for several weeks now, with optimum nonwoven quality of the very highest standards," said Vincent Bach, Managing Director of NOWOtex. The system is also ideal for manufacturing other high-end filtration nonwovens for industrial applications. "The Oerlikon Nonwoven system offers us maximum flexibility, allowing us to not just manufacture nonwovens for masks. Demand is huge and, thanks to the meltblown system, we have been able to launch our new NOWOmelt product range. This is providing our clients with an even broader range of innovative nonwovens," added Bach, talking about the investment in the new Oerlikon Nonwoven system.

Dr. Ingo Mählmann, senior vice president Sales & Marketing Oerlikon Nonwoven, said: "Many systems exclusively designed for mask nonwoven production were commissioned during the pandemic. In contrast, we are focusing on sustainability. Our meltblown systems have been designed in such a way that they can be converted for other applications – both quickly and without great expense. This means that our customers are well-equipped for future requirements."

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STRAHM





Zhejiang Huajiang orders new Dilo line

EBERBACH - DiloGroup has received a repeat order from Zhejiang Huajiang Science and Technology Co., Ltd. for a complete web-forming and needling line to process blends of glass and polypropylene fibre through a fibre preparation system, web-forming, carding and crosslapping and needling units.

The order comes as the automotive sector begins to show signs of a recovery, with investments in nonwoven production lines for the manufacture of glass fibre-reinforced thermobonded structural parts for automotive interiors now being considered by manufacturers. The order for a fibre preparation system from DiloTemafa is adapted to the special requirements for processing glass fibre in the most efficient way and to provide homogeneous blends with PP.

The component-dependent "Baltromix" blending system using highly precise weighing pans provides accurately dosed fibre material on the collecting apron, which is further opened and blended in a carding willow. This carding willow is used in most of DiloGroup complete line installations as a successful tool for further opening and blending tasks, in many cases together with a smaller chamber for final blending. As with many of its installations, DiloTemafa also provides the recycling of quality fibre derived from the whole process which is sucked off at many stations in the fibre preparation and web-forming system in order to save fibre material. Installations for fibre transport and for fibre recycling within a line together with re-opened edge trim material from a needling station and for dedusting the machines by a drum filter or bag filter station can be specifically engineered and designed by DiloGroup air system engineering department.

"The efficiency of a whole line processing mineral fibre largely depends on the efficiency in dedusting all machine components from bale opening through needling," the company said. "Solutions for this demanding task are part of the expertise of DiloSystems as general contractor." At the card, the so-called "fancy roller" is part of the system to provide the means to build the web on this double-doffer system without leaving too much fibre within the card clothing wire.

Dilo works closely together with a range of customers and card wire suppliers to provide an optimum wire system for processing the demanding range of mineral fibres successfully.

In the needleloom this expertise to prolong the intervals for cleaning stops is vital to efficiency. Therefore, blowing nozzles to clean the perforated plates, stripper and bed plates, are installed within the needleloom while the dust exhaust is separated at a filter station. The majority of Dilo lines today include an elaborate air system and the necessary components for fibre transport, dust transport and the transport of recycled fibres which are introduced at the beginning of the line.

INDA announces World of Wipes award finalists

CARY – Nonwoven-based wipe products for sanitizing, cleaning and beauty applications from Kimberly-Clark Professional, Lenzing and SharkNinja are the finalists vying for this year's prestigious World of Wipes Innovation Award.

The winners will be selected at the 15th edition of the 2021 World of Wipes (WOW) International Conference, July 12-15, in Atlanta, Georgia.

These three leading companies will present their innovations live at WOW 2021 to the wipes professionals attending the inperson event who hold an important one-third of the vote in their hands.

The award finalists will make their presentations at the conference on July 13 and the winner will be announced on the morning of July 15, capping off the conference focused exclusively on wipes that will be held at the Atlanta Marriott Marquis.

The World of Wipes Innovation Award recognizes products or technology innovations within the entire wipes value chain that expand the use of nonwoven fabrics and demonstrate advancements in creativity, novelty of approach, uniqueness, and technical sophistication.

"We are excited about returning WOW to an in-person event. We have plans for an exceptional conference addressing the key issues facing the wipes industry and including three strong finalists for this year's prestigious World of Wipes Innovation Award," said Dave Rousse, INDA President. "The finalists were selected by the INDA Technical Advisory Board from dozens of competitive wipes innovations. I applaud the ingenuity and creativity shown by Kimberly-Clark Professional, Lenzing, and SharkNinja in advancing the wipes market sector."

Finalists for the World of Wipes Innovation Award are:

Kimberly-Clark Professional – Scott 24 Hour Sanitizing Wipes are the first pre-saturated wipes to quickly disinfect and maintain surface sanitization for 24 hours, killing 99.9% of bacteria such as Staphylococcus aureus, Enterobacter aerogenes and Community-Associated Methicillin Resistant Staphylococcus Aureus Bacteria. The wipes patented formulation is found to be effective by the United States Environmental Protection Agency for disinfecting on hard, non-porous surfaces against numerous strains of bacteria and viruses, including SARS-COV-2 when used as directed. (It is not approved in California for use against SARS-COV-2.)

Lenzing – Lenzing Lyocell Skin fibres are designed with a patented technology that makes them translucent when impregnated with serum. Designed for the growing facial sheet mask market, these fibres are the basis for a premium facial sheet mask skincare routine that meets the expectations for translucency, smoothness, fineness and comfort. Lenzing Lyocell Skin fibers are described as an exquisite solution for consumer demands for more sustainable single-use masks made from natural cellulose and contributing to circularity.

SharkNinja – The Shark VACMOP is a cordless hard floor cleaning system that utilizes suction and spray mopping for a more thorough clean. The all-in-one disposable pad uses multiple nonwoven types allowing consumers to pick up and lock away dry debris, and also spray-mop to tackle the toughest messes. Shark VACMOP pads consist of two components - a dirt chamber that collects and locks away dirt and debris picked up by vacuum, and a fibre pad that mops up tough messes. Lightweight and cordless, the Shark VACMOP goes anywhere. With a click of a button, the pad (dirt, debris, wet mess) can be tossed away - without touching the dirty pad.

Albaad Group acquires Spanish wipes manufacturer

MASSUOT YITZHAK - Albaad Group is strengthening its position in the European hygiene market with the acquisition of the Spanish wet wipes producer Optimal Care.

The company will become the Albaad Iberia division, which will be integrated into Albaad's European subsidiary in Germany.

Optimal Care, located near Madrid, with approximately 300 employees and €60 million in turnover, is a leading supplier of wet wipes products in Spain, Portugal and Southern French markets. "In addition to its position in the market, we were also convinced by the good reputation of the products quality as well as customer satisfaction," said Dan Mesika, Albaad's CEO and President.

Through the acquisition, Albaad say it will implement its strategic plan to become the leading manufacturer of wet wipes in the European market under the leadership of Wolfgang Tenbusch, Albaad's Europe President – with key strongholds in Central EU (Germany), East EU (Poland) and now South EU (Spain and Portugal).

According to Mesika, expanding the European coverage will enable Albaad to give better service to its customers, react faster to market needs and changing regulations. Furthermore, the company can provide better products, lower transportation costs, ensure optimized production capacity, and give more localized customer support.

"We at Albaad understand and embrace the importance of innovation as an engine that drives growth and are committed to deliver environmentally friendly products," he added. "This step puts us in a position to reduce the environmental impact of, for example, logistical challenges such as carbon dioxide emissions caused by long transport routes. After all, sustainability is our top priority."

Mesika also noted that the objective was to maintain Optimal Care's entrepreneurial path and local culture despite the integration. "We see the Optimal Care team as an equal partner on a par with us and believe that their expertise will be of great benefit to the Albaad Group as we jointly focus on best practices and existing capabilities," he said, adding that there will be no operational changes for Optimal Care customers and employees initially.

Pratrivero to install Andritz stitchbonding technology

GRAZ - International technology Group Andritz has received an order from Pratrivero s.p.a. to supply a new eXcelle batt forming line for their production facilities in Valdilana, Italy. The line will be dedicated to the production of Maliwatt products, used in furnishing, automotive, naval, medical, geotextiles, advertising, clothing, and packaging applications. Installation and start-up are scheduled for the

third quarter of 2021.

The Andritz batt forming line includes an eXcelle card and eXcelle crosslapper, a ProDyn web profiling correction system as well as a scanning gauge with a closed loop. The ProDyn system combines actions from the card doffers with dynamic speed variation at the crosslapper. This, says Andritz, will result in substantial fibre savings and reduction in CV%, providing improved weight evenness in the final product.

The ProDyn closed loop is also designed to ensure the best possible self-regulation for the equipment ensuring the production of high quality fabrics. Pratrivero will be the world's first company to use the ProDyn technology in the Maliwatt stitchbonding process.

Stitchbond is a nonwoven process made by mechanically interlocking fibre webs with continuous filaments, thereby imitating textiles. Stitchbonded products are used in many applications due to their lower production costs compared to woven textiles. Among all the different nonwoven processes in which it operates, Andritz is also a market-leading supplier of batt forming equipment for the stitchbonding processes producing Maliwatt, Malivlies and quilting.

Pratrivero is major player in the production of nonwoven fabrics using stitchbonding technology. The company has several plants in Italy and the USA, producing different types of stitchbonded products. The centuries-old tradition of the Italian company, founded in 1663, combined with modern technology has enabled Pratrivero to bring stitchbonding to a high-end quality level with unique characteristics. The company already operates several Andritz eXcelle batt forming units.

Andritz has also successfully started up a new batt forming line for the stitch-bonding operation at South Africa's Romatex Home Textiles.

Premium power from Porto Marghera

WEINHEIM – Freudenberg Filtration Technologies has been awarded the air filtration contract for a new turbine which will supply half a million Italian households with their electricity.

From October 2021, Ansaldo's new H Class GT 36 gas turbine will start supplying electricity at the Edison power plant in Porto Marghera near Venice. Once fully operational, the combined cycle power plant will achieve an output of 780 MW and will be able to supply up to 500,000 households with electricity on a permanent basis.

It is believed to be the most powerful turbine ever produced in Italy and also makes the thermoelectric power plant the most efficient of its kind in Europe reducing CO_2 emissions by more than 40% and NOX emissions by more than 70% – resulting in a reduced environmental footprint for the region.

Freudenberg Filtration Technologies has designed a three-stage intake air system that is specifically adapted to the conditions at the site. Regardless of whether humid and salty air from the sea or fine dust from the industrial park is being drawn in, the GT 36 turbine is fully protected. This is ensured by the new system which consists of upstream pocket filter elements and two cassette filter stages with especially high separation efficiency

The new the air filter solution will pay off for operators in the long term. Reduced fouling on the turbine blades and minimized corrosion, which particularly affects plants near the sea, significantly reduce maintenance costs. With the threestage filter system produced in Italy and Germany, the power plant operator Edison will receive a high-performance, sustainable filtration solution that ensures the highest possible turbine efficiency.

Ahlstrom-Munksjö strengthens filtration business

BINZHOU - Ahlstrom-Munksjö has completed an investment at one of its filtration material production lines in Binzhou, China.

The machine rebuild adds production capacity and new capabilities that will further enhance the product portfolio, the company said.

The production line will now be able to deliver the highest performing oil, fuel, air and industrial filtration materials, which Ahlstrom-Munksjö says will strengthen its offering and service for the Asian customers. The investment plan was initially announced in January 2020.

"This investment reinforces our commitment to our customers in Asia," said Kathrin Hueppe, Head of Asia, Filtration & Performance Solutions business area. "Improving our capability in the Binzhou plant allows us to serve their growing needs in highperformance filtration."

Evolon tool provides overview of impacts

WEINHEIM – An Eco-calculator to help customers assess the suitability of Evolon nonwovens solutions for bedding and bath towels has been launched by Freudenberg Performance Materials.

The new Eco-calculator provides an overview of the environmental impacts generated by Evolon solutions over their entire life cycle, from raw materials extraction through



the laundering phases to product end-of-life. Eight environmental criteria, including carbon footprint, water impact and eco-toxicity, are evaluated. The tool relies on data provided and validated by independent external experts, who conducted a Life Cycle Assessment focusing on textile applications such as bed linen, bath towels and workwear used in hotels and hospitals.

The Eco-calculator also takes account of data from washing tests to evaluate the durability and the consumption levels of water, energy and detergent required by the different fabrics. The testing programme simulated industrial wash cycles to assess twelve different textile articles. Each type of product was evaluated in terms of the water, energy and detergent consumption required for its care as well as its appearance and mechanical properties after washings. "Our Evolon experts help our customers determine the scenarios they wish to evaluate, for example by varying the weight of the materials, the types of finish, the number of washing cycles, or the country of use," said Jean-François Kerhault, Evolon business manager. "Based on this data, the Freudenberg experts provide an economic and environmental evaluation using the Eco-calculator. This information can help our customers to evaluate the environmental footprint of their own finished products. They can include the data in their own product eco-design approach or meet new market requirements about information on carbon footprint."

Nonwoven fabrics made with Evolon technology and Evolon New Generation are said to be ideally suited for use as bed linen, cover material for fibrefilled pillows and duvets, mite-proof encasings and bath towels. Evolon base fabrics have been granted Oeko-Tex 100 which certifies they are free of harmful substances and suitable for contact with baby skin. Bedding items made from Evolon are also equipped with anti-mite properties without chemical treatment.



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Autefa at ITMA Asia + CITME

FRIEDBERG - Higher productivity, sustainability and Industry 4.0 compatible solutions were all key themes at Autefa's ITMA Asia+ CITME 2021 presentation in Shanghai.

The exhibit included the latest machines from the Nonwovens Technology, Woollen Carding Technology and Baling Technology business units.

Visitors to the booth received explanations on the key advantages of the full range of the Autefa Solutions textile equipment portfolio, with a detailed focus on a number of specific innovations. Visitors also heard about the economic and technical benefits of Autefa as a systems supplier for full nonwovens lines in technology for cardedcrosslapped needlepunching, aerodynamic web forming, spunlace production and thermobonding.

In needlepunching, the company has developed monitoring and quality improvement techniques with its patented 3-level Closed Loop Control System. Here, a scanner evaluates weight distribution in the final product, while the control system adjusts the profile at the crosslapper and the card feed accordingly. The 3-level Closed Loop Control System also incorporates the WebMax Web Profile Control, which ensures that the fabric profile is regular in both directions. This results in excellent fabric uniformity, with consequent savings in materials and costs. As a key supplier of fully-automatic, bale packing systems for staple fibre and tow, Autefa offers the entire range, from fibre transport to baler – as well as bale transport and warehouse storage of the pressed, wrapped and strapped bales.

The Uni-Fork System, meanwhile, eliminates bottlenecks in fibre production logistics while with its flexible baling concept, the company also sets the benchmark for fast-growing fibre line capacities.

Revolution renamed NanoLayr after expansion

AUCKLAND – Following a large-scale expansion carried out over the past year, nanofibre manufacturer Revolution Fibres has now renamed itself NanoLayr.

The New Zealand company, founded in 2009, has moved into a new 5,500-square-metre facility in Auckland equipped with five of its customised sonic electrospinning machines.

"An increasing number of industries are embracing what nanofibres can do to make products better and stronger, to maximise performance, and establish competitive advantage," said CEO Ray Connor. "We have been a pioneer of advanced nanofibre technology using our proprietary sonic electrospinning process to manufacture nanofibre products, including filter media for N95 and N99 face masks and the collagen skincare product ActivLayr. Our focus is to maximise the potential of our platform technology."

The company's expansion has been in response to global demand for nanofibre solutions across a wide range of sectors, including filter media, skincare, and sound insulation for the construction and furniture industries.

New meltblown line drives Lydall

MANCHESTER - Lydall swung back to a profit for its first quarter, boosted by a strong performance from its specialty filtration business and the start up of its new meltblown line in the US.

The company reported net sales of \$227.1 million, up 13.3% compared to the same quarter in 2020 while net income was \$5.1 million, up from a loss of \$56,421.

Outlining the results, Sara A. Greenstein, president and chief executive officer said the company had delivered another very strong quarter led by sales growth and sequential margin expansion in every business segment. "We continue to execute on our strategic roadmap and leverage our strong product portfolio to deliver measurable results as we help our customers win," she said.

Specialty filtration sales at Lydall rose sharply as the company's new fine fibre meltblown production line in Rochester, New Hampshire began producing media at full capacity early in the quarter. This was complemented by a strong demand for sealing solutions and specialty insulation products in the Group's Performance Materials business. Speciality filtration sales grew 32.7% or \$8.5 million, with sales of sealing and advanced solutions products up 14.4%. "Incremental fine fibre meltblown capacity at Rochester and St. Rivalain, France remains on schedule for full production rates in early third quarter, which we expect to contribute to strong growth and further margin expansion," Greenstein added.

Lydall's Technical Nonwovens (TNW) segment saw sales growth of 7.4%, led by strong growth in Canada and China.

First CAC biodegradable wipe substrates

ASCHERSLEBEN – Mondi's new CAC (carded-airlaid-carded) line is now producing samples for qualification at the company's plant in Germany, having started up in February.

"This is the first machine of its type producing nonwovens based on composites of staple fibre and airlaid pulp," explained the company's director of R&D Michael Trinkaus during the online EDANA Outlook conference (April 21-23). "The nonwoven layers are combined by hydroentanglement without the use of binders to produce materials that are 100% renewable, biodegradable and compostable." The resulting nonwovens for wipes are tough on mess, while being gentle to the touch, with a stable 3D texture, he added. The viscose and pulp combination also results in a high surface area. Other advantages include the pattern stability of the materials made by



the CAC progress, with the short fibres strongly positioned by the hydro-moulding step. This also ensures the lotion in wipes stays where it should. "Going forward, we will explore other combinations of natural fibres, with the Danweb airlay unit capable of handling any short fibres," Trinkaus said. "The biggest advantage of these new nonwovens is their biodegradability and ability to disintegrate within a month, as has been proven in a peer reviewed LCA."

Biotransformation for polyolefin fibres and nonwovens

LONDON - Indorama Ventures' fibre manufacturer FiberVisions and nonwovens manufacturer Avgol have partnered with Polymateria to commercially harness the 'biotransformation' technology pioneered by the UK-based company. The patented technology alters the properties of polyolefins to make them biodegradable in a natural process.

The Biotransformation Technology will enable the companies to bring disposable products a unique managed lifecycle and further expand an already extensive catalogue of fibre/spunlaid offerings. The focus of these efforts will be in the launch of non-oxo-degradative components for personal protection masks and face covering, hygiene, agricultural, industrial and homecare applications.

The use of Biotransformation Technology will support applications in non-virgin resin recycling while providing a solution for 'fugitive' used articles, including those items that have not been properly recycled or disposed of. This process involves the material decomposing into a wax, wherein the wax is further degraded by environmental bacterial action into carbon dioxide, water and biomass.

The parties have been developing prototypes of component fibre and nonwoven products. The first prototypes developed through the partnership have been tested and are compliant with the stringent testing for biodegradability defined in British Standards Institute's (BSI) new standard for Biodegradation, PAS9017. In meeting this standard, fibre and fabrics are confirmed to form no harmful microplastics as part of the biodegradation process.

Adhesive giant launches podcast

Bostik, a major supplier of adhesive solutions to manufacturers of absorbent hygiene articles, has launched an all-new podcast.

'Attached to Hygiene' is a podcast that brings Bostik's global industry knowledge and expertise to the market on a convenient, on-demand platform.

Illustrating the need for up to date information, Bostik will be releasing a new 'Attached to Hygiene' episode every two weeks in which the listener is taken on a comprehensive tour through a variety of interesting and timely industry topics. Bostik and guest industry experts will provide valuable insight into consumer and market trends that support article producers in their efforts to stay abreast of market dynamics.

"For decades we've communicated through face-to-face meetings, emails, web content, videos, and webinars," said Jack Hughes, Bostik's global digital marketing manager and podcast host. "Given the rising popularity of podcasts, we thought this would be another great opportunity to share information and knowledge specific to the disposable hygiene industry in a way that is both easy to find and digest."

Upcoming episodes of 'Attached to Hygiene' take a detailed look at consumer needs and how they are driving trends in the disposable hygiene market. Bostik and its podcast guests discuss what they and the industry are doing to address these trends today and in the future; how choices in adhesives, materials, and substrates can differentiate article producers from their competition.

Listeners can find the first two 'Attached to Hygiene' podcasts and subscribe to future episodes on Spotify, Apple Podcasts, Google Podcasts, Pandora, Tuneln, Stitcher, and iHeartRadio.

Berry strikes polyolefins deal with Borealis

EVANSVILLE - Berry Global has announced an agreement with Borealis for access to the latter's first volumes of the indemand circular polyolefins produced from its chemical recycling process.

This deal adds to Berry's previously announced access to the 600 million pounds of post-consumer recycled (PCR) content it will have access to by 2025.

The polyolefins from Borealis are obtained by advanced recycling, enabled by the adoption of new chemical recycling technologies, of post-consumer plastic waste not suitable for traditional recycling.

These processes make it possible for material that would otherwise be discarded as waste and destined for incineration or landfill to be used as feedstock for production of polyolefins that fulfil the most stringent quality requirements.

"Investments in chemical recycling with partners like Borealis are critical to Berry and our customers as we collaborate across the value chain to solve the global commitment achieving netzero emissions by 2050," said Jean-Marc Galvez, president of Berry's Consumer Packaging International Division. "Plastics are a critical solution as we advance toward circularity. As the preferred substrate for its lower greenhouse gas emissions, Berry's design expertise with circular resins is an important factor in the journey to demonstrate the value of giving plastic multiple lives."

Essity to increase ownership in Productos Familia

STOCKHOLM - Hygiene and health company Essity has agreed to acquire approximately 44% of the Colombian hygiene company Productos Familia S.A in a US\$1.54 million deal that will bring its total holding in Familia to at least 94%.

Essity has been an owner in Familia since 1985, which, headquartered in Medellín, Colombia, has strong presence across Latin America.

The company operates primarily in Personal Care, and also in Consumer Tissue and Professional Hygiene. Familia is already consolidated in Essity's accounts, and reported sales in 2020 of SEK 6,950 million, an adjusted EBITDA of SEK 1,419 million and adjusted EBITA of SEK 1,170 million. Organic sales growth in 2020 amounted to 2.8%.

"Familia is an innovative and consumer centric company," said Magnus Groth, president and CEO of Essity. "Our strong relationship dates back more than 30 years. With this acquisition we are building a stronger platform in Latin America to increase growth, profitability and efficiency as well as accelerating the digital transformation."

In Colombia, Familia is the market leader for Feminine Care with the brand Nosotras, Incontinence Products with the brand TENA and Consumer Tissue with the Familia brand.

Amarande eyeing growth with new Andritz needlepunch technology

GRAZ - International technology Group Andritz has received an order from Amarande SAS to supply an elliptical cylinder pre-needler for their plant in Lussac les Châteaux, France.

This machine will process shoddy and natural fibres for the production of heavy felts with installation and start-up of the machine scheduled for the second quarter of 2021.

The new needlepunch production line with the high-performance Andritz cylinder pre-needler will allow Amarande to offer high-quality products and open up new market opportunities, Andritz said.

Andritz offers a complete range of elliptical cylinder pre-needlers: PA.169, PA.2000 and PA.3000 – serving different weights, widths, speeds and punching capacity.

They have been produced since the 1960's and have a large installed



base worldwide. Over the years they have become a must for production of heavy products, special applications and also for demanding applications like automotive. They are a key success factor in enabling the subsequent needling machines to process heavy batts smoothly and control the progressive draft through the consolidation process.

Established in 1990, Amarande is a major French producer of nonwovens, specialized in the production of felt and wadding from recycled textile and natural fibers (wool, cotton, hemp, flax, jute, etc.). The company operates in various markets such as furniture, green spaces, horticultural crops, and insulation.

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Infinited stays local for €220 million plant

ESPOO – Infinited Fiber Company (IFC) will build its first commercial plant for Infinna regenerated fibres in Finland and will decide on the location by September.

The plant's entire output is intended for export and the company is currently negotiating offtake agreements with several global fashion and textile brands. It believes agreements will be in place before the end of 2021, securing the factory's entire output capacity for several years.

The total investment for setting up the plant is estimated at around \in 220 million, and it will be operational by 2024.

"We are seeing great demand for our circular Infinna textile fibre from global fashion brands and setting up our own plant is a response to this demand," said cofounder and CEO Petri Alava. "While technology licensing remains central to our longterm business strategy, this plant will speed up the availability of Infinna to the global fashion and textile market in the short to medium-term."

Infinited's technology turns cellulose-based raw materials, like cotton-rich textiles, used cardboard or rice or wheat straw, into Infinna, a unique, premium textile fibre with the natural, soft look and feel of cotton. The company currently operates pilot facilities in the cities of Espoo and Valkeakoski in Finland, with a combined nominal capacity of 150 metric tons per annum. The planned flagship factory will have an annual capacity of 30,000 metric tons per year and will use textile waste as feedstock.

Softys ups converting capacity

SAO PAOLO - Softys, the leading South American manufacturer of absorbent hygiene products, has installed converting machines for the production of face masks at its plants in Chile and Brazil and has further machines on order to be put in place in Peru and Mexico, along with a second in Brazil, in the next few months.

Each machine is reported to be capable of producing 1.5 million threefold masks – which will be distributed for free through local public health services – per month.

The company is aiming to generate a collaborative supply chain that is local, timely, safe and with production of the required quality. "We have seen the urgent need for masks, so we are expanding our initial production from three million a month in Chile and Brazil to more than 18 million," said Gonzalo Daraidou, general manager of Softys. "We are not addressing this challenge as a business, but as the response expected from a company focused on caring for people, just as we do with our hygiene and personal care products."

The masks being produced are three-layer SMS models and the machines are fully automated.

"We are convinced that the local production of masks will provide a lot of tranquility at a time when the external dependence on these products has become complex, as a result of high global demand," said Darraidou. "Finland has a long history of cellulose-based industries, excellent engineering capabilities and a strong drive to become a leader in circularity," said Alava. "We are currently considering several potential locations across Finland where the existing infrastructure is supportive of our plans."

International technology group Andritz will be a key supplier of the process equipment for the new plant.

"We are thrilled to work together with Infinited to create new, bio-based fibres for textiles from waste," said Kari Tuominen, president and CEO of Andritz Oy. "We see the recycling of textile waste as a new, very interesting application area and our versatile product portfolio has the suitable equipment for the mechanical and chemical treatment of textile waste. As a leading supplier to the pulp and paper industry, Andritz can deliver large entities for our customers. Textile waste recycling is becoming mandatory in the EU from 2025 and we are keen to be involved in developing new bio-based fibres from textile waste and from other cellulose-based materials."

Finnish waste management company Lounais-Suomen Jätehuolto Oy (LSJH), which is owned by 17 municipalities in South-West Finland, will supply raw material to the plant from the full-scale textile waste refinement plant it is preparing in the Turku region of Finland. The plant will process all the end-of-life textiles of Finnish households in cooperation with other municipality-owned waste management companies.

More than 92 million metric tons of textile waste is produced globally every year with much of it ending up in landfills or incinerators. At the same time, textile fibre demand is increasing, with Textile Exchange estimating the global textile fibre market will grow by 30% to 146 million metric tons in 2030.

Expanded product categories at Techtextil North America

ATLANTA – Techtextil North America returns to Raleigh, North Carolina from August 23-25, 2021, bringing with it the latest innovations and supply chain solutions for the technical textiles and nonwovens industries.

Visitors to the show will have the chance to source manufacturing technology, machinery, and textile products ranging from high-tech fibres, functional apparel fabrics and smart textiles to composites and nonwovens.

In addition, this year's event will see expanded product categories through the incorporation of two new pavilions:

Textile Care Pavilion

The new Textile Care Pavilion, powered by the Clean Show, will showcase the latest products & technologies for the textile care sector – from treatment to finishing to after-market care. The Textile Care Pavilion will include innovative products and services in the following categories:

- Washing/drying equipment
- Water technology/utilities/energy saving

Green product technology

- Agents and systems for the cleaning, finishing and disinfection of textiles
- Logistics and material flow

Exhibit space is available, but limited. Interested companies can learn more and apply for a booth via the Techtextil North America website.

Advanced pricing ends June 18th, 2021, and standard pricing will run from June 19th through the last day of the show. Full pricing details can be found on the show's website. Additional discounts are available for students and military.

For more information on the upcoming edition of Techtextil North America, August 23-25, 2021 in Raleigh, North Carolina, please visit: www.techtextilna.com.

Albaad invests in additional line

MASSUOT YITZHAK - Nonwovens manufacturer Albaad is investing around €50 million in expanding and improving its environmentally friendly nonwoven production line.

The new capacity will be used to produce a sustainable fabric that will be made entirely from natural fibres, biodegradable,

fully flushable and plastic-free. The market launch is scheduled for 2023 and, says the company, is indicative of its continuing sustainability strategy.

As Albaad CEO Dan Mesika notes, most wet wipe products are made of synthetic fibres, such as cosmetics, baby care and cleaning wipes. This poses a major challenge to wastewater systems. When improperly disposed of, the tear-resistant wipes fibres can be problematic and damaging. Furthermore, products that are not biodegradable and flushable are a burden on the environment.

"As one of the world's largest producers of wet wipes and nonwovens, we at Albaad understand and embrace the importance of innovation as an engine that drives growth and we are committed to delivering eco-friendly products of the highest quality in order to create a better world for us to live in," Mesika said.

With its new line, Albaad says it hopes to make active contribution to the environment, as well as meeting growing customer demand for environmentally friendly alternatives.

The new nonwoven material will be used in all of the manufacturer's product categories, including moist toilet paper, wet wipes for baby care and feminine hygiene, household wipes and personal care wipes. "The material will be plastic-free and biodegradable, as it will be made only from natural fibres. However, the quality of the product will definitely not be **)**



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NXTNano to double capacity in 2021

CLAREMORE – NXTNano has started the installation of three additional HYPR-Spun nanofibre production lines, taking its total to six. The first new line is expected to be operational in June, and all three within the year, each capable of high volume nanofibre manufacturing in nonwoven rolls up to a maximum width of 2.15 metres.

"In 2020, we saw the rapid adoption of our products into a number of new markets and more importantly, we have a social obligation to continue serving our mask, respirator, and indoor air purification customers who have taken up the fight against Covid-19," said director of sales Andrew McDowell "In existing markets we expected the pandemic to produce a pronounced slowdown, but that never materialised. As a result of the growth and new projects moving to commercial sales, the time has arrived for us to add capacity. " The number of markets commercially consuming nanofiber has continued to exhibit strong growth, and according to industry reports, this trend is expected to continue. Growth is expected to be above 36% annually in the next few years and this, combined with a unique focus on application know-how, has allowed NxtNano to lead the pack in both innovation and economics-based adoption.

"I've spent nearly my entire career in nonwovens and filtration, over 30 years now, and the last nine months have been unlike anything I've experienced before," said Alan Smithies, vice-president of technology for the California-based company. "The growth has not been without challenges, but as a company have stepped forward and embraced them. Our head count is now over 80 people, more than two and a half times what it was in 2019, and we are putting out full truckloads of material every day.

"Our customers have been absolutely phenomenal in working with us to execute innovative products the market desperately needed, and for that, I must give them credit. These new lines are our commitment to ensuring they continue to succeed." neglected," Mesika added. "This makes Albaad one of the first wet wipes companies in the world to be fully integrated with a range of environment friendly products growth through sustainable innovation."

The nonwoven fabric will be manufactured at the company's production site in Israel and shipped to all its sites worldwide. "Innovations are a significant source of corporate growth and value creation. We are therefore convinced that this investment will quickly pay off," Mesika said.

Kelheim Fibres joins ZDHC "Roadmap to Zero"

KELHEIM - Bavarian viscose speciality fibre manufacturer Kelheim Fibres has joined the ZDHC programme, 'Roadmap to Zero' which, with more than 160 contributors worldwide, has set itself the goal of completely eliminating harmful substances from the textile value chain.

The ZDHC guidelines provide producers of Man-made Cellulosic Fibres (MMCF) with uniform criteria for measuring indicators such as wastewater, air emissions and other process-related parameters with the data independently monitored and published.

Kelheim Fibres, the world's first EMAS-validated viscose fibre producer, said it sees its ZDHC contributorship as another building block on the road to even more sustainable fibre production: "We want to develop our industry with our know-how towards a greener future," said Craig Barker, CEO at Kelheim Fibres. "Sustainability is an integral part of our corporate philosophy and strategy. We fully support ZDHC's vision of a widespread implementation of sustainably chemistry, driving innovations and best practices in textile, apparel and footwear industries to protect consumers workers and the environment.

"ZDHC provides us with access to a range of best practices in chemical management and gives us the opportunity to network and learn from each other with like-minded industry partners. ZDHC's collaborative approach will accelerate the shift to a more responsible industry and we want to contribute to that."

Kelheim Fibres' speciality viscose products are used in a range of diverse applications from fashion, hygiene and medical products to nonwovens and speciality papers.

All fibres are made from 100% wood pulp from PEFC or FSC certified sources. They are fully biodegradable and offer an environmentally sound alternative to petroleum-based materials in a broad range of different end products – while maintaining or even enhancing the functional performance of the product.

The production takes place exclusively in Germany and complies with the strict German environmental legislation.

Kelheim Fibres is the first viscose manufacturer worldwide with an EMAS-validated environmental management system. *Web: www.kelheim-fibres.com*

NEWS

Cellulosics avoid SUP rulings but bioplastics included

BRUSSELS - The European Commission has confirmed that viscose and lyocell based fibre products have been determined to not be chemically-modified and therefore will not be included in the coming European Union Single-Use Plastics Directive. However, in a blow to the biopolymers sector, the latest guidance has ratified that biodegradable/bio-based plastics are considered to be plastic under the SUP Directive.

In determining its guidelines, the Commission took the view that a polymer will only be natural if its polymerization process actually takes place in nature (i.e., it may not be the result of an industrial process even if it involves living organisms). According to the guidance, this means that cellulose extracted from wood are natural polymers, while polymers resulting from biosynthesis via artificial industrial fermentation are not.

A statement from the Commission also notes that there are no widely agreed technical standards available to certify that a specific plastic product is properly biodegradable in the marine environment in a short timeframe and without causing harm to the environment.

However, as a fast developing area, the review of the Directive in 2027 will include an assessment of the scientific and technical progress concerning criteria or a standard for biodegradability in the marine environment applicable to single-use plastic products.

In the context of the new Circular Economy Action Plan, the Commission says it plans to develop a policy framework on the use of biodegradable or compostable plastics in 2022, based on an assessment of the applications where such use can be beneficial to the environment, and of the criteria for such applications.

The decision has provoked a strong reaction with Italy's Ecological Transition Minister Roberto Cingolani calling it an 'absurd' decision.



"It is an absurd directive, for which only recycled plastic is okay," he told euractiv.com. "Europe has given a very strange definition of plastic, [including] only recyclable plastic. All the others, even if they are biodegradable or they are additive of something, they are not good. Our scientific community has a worldwide leadership on the development of biodegradable materials, but at the moment they are not usable by industry, because there is a new and absurd European directive."

Directive

Under the terms of the directive, Member States have to ensure that certain singleuse plastic products are no longer placed on the EU market by July 3, 2021.

The selected products are those for which affordable plastic-free alternatives exist on the market: cotton bud sticks, cutlery, plates, straws, stirrers, balloons sticks, as well as some products made of expanded polystyrene (cups and food and beverage containers) and all products made of oxo-degradable plastic.

For other plastic products, such as sanitary items and wet wipes, different measures apply. These include limiting their use, reducing their consumption and preventing littering through labeling requirements, extended producer responsibility schemes, awareness campaigns and product design requirements.

As far as cellulosic fibres are concerned, the Commission's guidelines take the view that whether or not a natural polymer is chemically modified during its production process depends on whether the chemical structure of the polymer resulting from the production process (i.e., outgoing polymer) is different from that of the ingoing polymer.

Following this reasoning, the guidelines argue that regenerated cellulose, in the form of lyocell, viscose and cellulosic film, is not considered chemically modified because the outgoing polymer is not chemically modified in comparison to the ingoing polymer.

Welcoming the decision, cellulosic fibre specialist Lenzing said the guidance provided enhanced clarity for its Veocel branded fibres. "Pollution of the environment – especially marine pollution is one of the biggest problems of our time. For this reason, we welcome the measures taken by the EU to reduce certain single-use plastic products and the transition to closed-loop models," said Robert van de Kerkhof, member of the Managing Board of the Lenzing Group. "Lenzing has been investing in the development of sustainable and innovative solutions for the textile and nonwovens industry for many years and will also continue in the future to intensively work on achieving systemic change towards a circular economy."

Jurgen Eizinger, vice president Global Nonwovens Business at Lenzing added. "The issue of hygiene is becoming increasingly important and is especially the order of the day in the light of the prevailing epidemic conditions. We welcome these implementation guidelines which now provide enhanced clarity.

"Veocel fibres already offer a natural solution today for the problem of global plastic waste, and the company is continually expanding its capacities for wood-based specialty fibres as a means of promoting the development of sustainable wipes and hygiene products." SNW

Covid–19: the impact on disposable vs. durable nonwovens

A new report examines how the coronavirus pandemic has impacted demand and global economic growth across the nonwovens industry.

A new White Paper from market research specialist Smithers examines the impact of the Covid-19 pandemic on disposable nonwovens, with a particular focus on medical nonwovens and the home care wipes market. The report -*COVID-19: The Impact on Disposable vs. Durable Nonwovens* - also looks at the impact on durable nonwovens, with a focus on the automotive and the construction markets and how different end-use sectors are likely to recover post-pandemic.

In late 2019, Smithers published *The Future of Global Nonwovens to 2024* report, with the data finalised before Covid-19 struck. Since then, the pandemic has had a significant impact on nonwovens consumption across the world, so Smithers has revised its forecasts to take into account the likely economic impacts, and changes in consumer behaviour resulting from the pandemic in the short and medium term. The different categories and production methods will fare differently as companies revise their strategies.

In the long term, the overall nonwovens market will most likely see a small effect (-1.5% decrease in volume in 2024) from Covid-19, and even this small effect is unlikely to be permanent. The effects will be significantly different for the disposable nonwovens (consumer) market and the durable

FIGURE 1: ALL SCENARIOS: GLOBAL NONWOVENS CONSUMPTION, 2019-2024 ('000 TONNES) —Base Case — Optimistic — Most Likely —



nonwoven (industrial) market. Items such as face masks, medical gowns and disinfectant wipes spiked in 2020, but baby diapers and wipes should be recession proof through 2024. Construction and automotive, however, will see major impacts from global economic contraction.

During this crisis, there are two major drivers; Covid-19 critical product demand and global economic growth. The white paper critically examines how these drivers are impacting disposable and durable nonwovens and their subsegments, as well as how each sector is likely to recover post-pandemic. Three potential future scenarios are also presented, with detailed insights into how the outcomes of these different scenarios will likely impact the industry.

Scenarios

The IMF economic update on April 14, 2020 was taken as the base case for the three different models. As we pass the one-year mark, it has become clear that the most likely scenario resides between the 'probable' impact and the 'pessimistic' impact.

Under the probable impact a full 4 quarters is required to return the global economy to pre-crisis growth while under the pessimistic impact, a full 8-10 quarters is required.

For both scenarios in the nonwovens market short term, consumers and institutions will significantly increase consumption of face masks, disinfecting

FIGURE 2: SECTOR IMPACT: DISPOSABLE NONWOVENS

As a result of the pandemic, disposable nonwovens will receive a boost in demand short term, followed by little or no effect long term. However, there are differences between key sub-segments within disposable nonwovens.

Hygiene (diapers, feminine			
hygiene and adult incontinence)		No or small positive impact, consumer consider these necessities and may overbuy to guarantee supply	
Medical		Highly positive, face masks are a critical need and gowns, drapes, covers all needed. Many existing and new face mask suppliers expanding, likely to be oversupply in 2022	
Wipes – Baby	٠	Positive, consumers consider a necessity and can be used in place of toilet tissue	
Wipes – Personal Care	•	Positive, flushable moist toilet tissue wipes replaces toilet tissue	
e in Wipes – Home Care Highly nonw	Highly positive, disinfecting wipes widely used by both consumers and institutions. Major nonwoven capacity and converting expansion for disinfecting wipes has been announced		
🧭 Wipes – Industrial	•	Positive, healthcare and food service wipes are used to disinfect hard surfaces	
Other disposables		Small positive, packaging and food pads needed	
Automotive / Transportation		Negative, production shut down, consumers financially stressed, tracks economic growth	
	 Medical Wipes - Baby Wipes - Personal Care Wipes - Home Care Wipes - Industrial Other disposables Automotive / Transportation Negative 	Medical Wipes - Baby Wipes - Personal Care Wipes - Home Care Wipes - Industrial Other disposables Automotive / Transportation Negative	

wipes, medical garments, adult moist toilet tissue; longer term they maintain higher levels of these critical products as new learned behaviours increase disinfecting procedures. Automotive / transportation, construction and related industries remain depressed through 2024.

Costs

As the report notes, Covid-19 is inflicting high and rising human costs worldwide, and the necessary protection measures are severely impacting economic activity.

As a result of the pandemic, the global economy was predicted to contract sharply by -4.2% in 2020, much worse than during the 2008-09 recession. The economic fallout is acute in specific sectors, and so policymakers need to implement substantial targeted fiscal, monetary and financial market measures to support affected households and businesses domestically. Internationally, strong multinational cooperation is essential to overcome the effects of the pandemic.

As a result of the crisis, the nonwovens industry has almost become two separate industries – disposable and durable (see figure 1).

The disposable nonwovens industry, providing products that are critical for healthcare and safety during the pandemic, is experiencing high levels of consumption. The longer this part of the

FIGURE 3: ALL SCENARIOS: MEDICAL NONWOVENS DEMAND, 2019-2024 ('000 TONNES)



ALL SCENARIOS: HOME CARE WIPES NONWOVENS DEMAND, 2019-2024 ('000 TONNES)



crisis continues, the higher the level of disposable nonwovens consumption.

The durable nonwovens industry is composed mainly of products which are being strongly affected by the global economy. The longer the economic crisis continues, the lower the level of durable nonwovens consumption.

The two parts combine to balance the effect of Covid-19 on the overall global nonwovens market. In 2020, overall

nonwovens volume was expected to only deviate by +0.1% from forecasts published in 2019; and by 2024, volumes will deviate by -1.5%.

As a result of the pandemic, disposable nonwovens will receive a boost in demand short term, followed by little or no effect long term. However, there are differences between key subsegments within disposable nonwovens see Figure 2.)

FIGURE 4: SECTOR IMPACT: DURABLE NONWOVENS

Durable nonwovens will be negatively impacted, both short and long term, as a result of the pandemic. Most sub-segments track economic growth, however, there are some key differences between the sub-segments.

	Product	COVID Impact	Comments
	Building / Construction	•	Negative, residential / commercial construction tracks economic growth
Durable	Floor coverings		Negative, tracks construction and economic growth
Nonwovens 45.2% volume	volume Garments Garments Positive, protective garments the hospital locations	Positive, protective garments used in labs, testing and other non- hospital locations	
in 2020	Filters / Agriculture	•	No major impact, food supply is a critical need
	Civil engineering, geotextiles, upholstery & coated substrates	•	Negative, all of these track economic growth
Positive 🧧 S	tatic Segative		

The two most critical disposable nonwovens based products are the medical nonwovens sub-segment (including the drastically needed face mask market) and home care wipes (including the sold out disinfecting wipes market).

The medical nonwovens was projected to spike in 2020, with even the worst case scenario projecting a 12.2% increase in consumption. Longterm, post-Covid, most scenarios show that medical nonwovens will return to near (+1.1%) base case whilst the pessimistic scenario projects a return to base case by 2024.

The home care wipes market increased significantly in 2020, with all scenarios projecting a 10.2-15.7% increase over the base case. The market is projected to retain some of this increase by the optimistic scenario (+6.5%) and most likely scenario (+1.4%), whilst the pessimistic scenario projects no gain in 2024 (see figure 3).

In the Durable sector, nonwovens will be negatively impacted, both short and long term, as a result of the pandemic. Most sub-segments track economic growth, however, there are some key differences between the sub-segments (see figure 4). The two durable

FIGURE 5: ALL SCENARIOS: AUTOMOTIVE NONWOVENS DEMAND, 2019-2024 ('000 TONNES)



ALL SCENARIOS: CONSTRUCTION RELATED NONWOVENS DEMAND, 2019-2024 ('000 TONNES)



nonwovens sub-segments focused on in the report are the automotive and construction market segments as they have a much larger effect on the overall nonwovens market.

The automotive segment, including all transportation, was projected to experience a -5.0% to -8.2% decrease in

2020 according to all scenarios. By 2024, the most optimistic projections are a return to the base case volumes, whilst the pessimistic projects a -9.7% decrease, with the most likely projection being a -4.9% drop.

The construction related markets, including building / roofing and floor coverings, were projected to drop from -2.3% to -10.9% in 2020.

Projections in 2024 vary from no change to a -7.8% decrease, with the most likely projection at -2.9% (see figure 5).

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https://www.smithers.com/home SNW

IN FIGURES

Global nonwovens consumption was estimated at **11,731,900** tonnes in **2020**, with a **6.6%** CAGR to **2024** in volume.

In **2020**, global nonwovens consumption was expected to decrease slightly by about **-0.5%**. By **2024**, global nonwovens will change by **+0.1%** to **-4.2%**. By **2024**, disposable nonwovens will be **+0.1%** above base. Durable nonwovens will be **-2.7%** below base.

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August 23-25, 2021

EDANA's Outlook 2021: key trends in the post-pandemic world

This annual conference for the absorbent hygiene products industry explored the current trends impacting the industry ranging from the shape of the market following the Covid-19 pandemic to a raft of key sustainability topics.

conomist Robert Ward made his first keynote presentation at the EDANA Outlook conference in September 2011, which was held in Budapest.

It's safe to say that business forecasting hasn't got any easier in that time and addressing attendees online at this year's Outlook conference on April 21st, Ward spoke of the Covid-19 pandemic as a "generation defining event", with global GDP pushed back to what it was in 1961.

"It has been the biggest shock since World War 2, dwarfing the economic crisis of 2009 and will have long-lasting consequences," he said. "There is, however, now cause for cautious optimism, with some regions in the early stages of recovery, but this will be uneven around the world and the USA is now likely to outperform its peers as a result of Joe Biden's \$2 trillion stimulus package."

The move away from fossil fuels is now an established trend, he added, with the election of Biden marking a definite stepchange and the USA rejoining the Paris Climate Accord as a result. Ward stressed, however, that the Biden administration's focus will be on the country's domestic economy and its policy towards China won't change in substance, with both nations now pursuing a policy of economic decoupling.

China was the only country to grow in 2020 and as the Communist Party celebrates its 100th Anniversary this July, the country is increasingly seeking influence over global standards and to bind countries closer to it via the creation of a digital Silk Road.

"Globalisation won't return as we knew it and most likely peaked around 2015-16, but full industrial decoupling from China is virtually impossible because there is no other country with the scale and structure" Ward said. "There will still be greater regionalisation which will lead to higher costs, with an emphasis on resilience over efficiency, more industries deemed 'strategic', and shifts in supply chain management."

China faces a difficult decade ahead, he said, due to the hostile external

environment, not just in the USA, but also Europe, India and other parts of Asia.

Silver bullet

The prices for polypropylene and polyethylene feedstocks for nonwovens have been at record highs in the first months of 2021, following unprecedented volatility in 2020.

In his keynote speech, Kaushik Mitra, executive director of Düsseldorfheadquartered consultancy IHS Markit, explained that while the Covid-19 pandemic led to unprecedented demand for health, hygiene and medical products, demand from the automotive industry, construction and other durable markets for polypropylene (PP) and polyethylene (PE) was deeply impacted.

"Oil prices collapsed last year in the USA and Middle East and polymer prices followed," Mitra said. "There was a sharp reduction in imports and recycling became uncompetitive, leading to many manufacturers switching to virgin resin. In the USA, many resin and fibre producers cut back production due to the pandemic and several plant start-ups were delayed for three-to-six months. In Europe the refineries cut back on oil production due to the low demand for fuel, leading to a tight supply for propylene."

In Europe, he added, propylene feedstock prices were higher than those for ethylene for the first time in ten years.

In addition, there has been significant speculative buying from China and the US storms came at the worst possible time for plants re-starting activity. The Suez Canal blockage has further exacerbated supplies in 2021.

As a result of this combination of factors, the prices for PP and PE feedstocks in Europe were higher in April this year than their pre-Covid levels, but from May new plants are beginning to come onstream, cracker outages are over and other plants are resuming manufacturing, Mitra emphasised.

In addition, price resistance is returning as manufacturers resume the transfer of higher costs to end-buyers.

"There will now be a period of oversupply as delayed capacity expansions become available and prices will drop and bottom out in 2022," he said.

The surplus of new polypropylene that will became available is around seven million tons, with China responsible for more than 70% of new capacity builds, ensuring the country is self-sufficient going forwards.

European producers of virgin PP and PE now face further challenges through legislation, with the Single-Use Plastics Directive imposing a levy of \in 800 per ton on waste plastics produced from

THE BABY DIAPER MARKET TO 2024



A look at baby diapers:



Source: © Euromonitor International

1 400

1 200

2021 and stipulating that 50% of plastic-based products have to be based on recycled raw materials by 2050.

"This is a serious challenge and there are also limitations on the export of plastic waste," Mitra said. "Many manufacturers will have no option but to recycle or use alternative raw materials, where chemical recycling – separate from incineration – is being regarded as a silver bullet.

"The legislation will not apply to importers, but EU regulators are now examining what they call "carbon leakage factors" and mulling a carbon border tax that will eventually bring more parity in this evolving situation. They are very much up to speed on the disadvantages that could be faced by European manufacturers, and seeking to redress them."



Innovations for incontinence

The global growth of adult incontinence products will be in the annual range of 8-9% in the next few years, according to industry consultancy Price Hanna, with ultra-thin products and pull-up-type pants the fastest growing products.

"Age is associated with incontinence products more than anything else, and populations are getting older," said Colin Hanna during his presentation. "At the same time, people are living longer so there are an increasing number of people needing incontinence products for longer. In addition to age, obesity is the condition most linked to stress incontinence and obesity rates have been rising globally since 1975. Both an ageing population and obesity put pressure on healthcare costs as a share of GDP and it is worth noting that the consumer growth of AI products is growing faster than that of institutions. It is some of the most mature markets for these products that the change is most notable."

Institutions, he added, are prioritizing cost, but at the same time are willing to adopt sensor technologies with demonstrable benefits in terms of reduced labour and quality of care. Consumer awareness and access to online and big-box discount products is meanwhile driving the consumer demand for premium products.

"The benefits of e-commerce are uniquely valuable for adult incontinence products, especially the anonymity of online shopping and the discrete **)** packaging of deliveries to the door. As a result, major retailers and home medical suppliers are increasingly adopting omnichannel strategies."

In examining current trends in the market, Pricie Hanna said that ultra-soft nonwovens for skin contact are increasingly required in premium adult products.

"This is obtained, for example by bicomponent spunbond and SMS as well as spunbonds with softness additives, fine denier filaments and high loft products," she said. "We are also seeing softer stretch laminates with spunbonds laminated to closely-spaced rows of elastics or perforated elastic film for high breathability and comfort.

"Another trend is for cotton and other natural fibres which are spunlaced for cloth-like topsheets, acquisition and distribution layers and backsheets, and reduce synthetic content."

In absorbent core design, lightweight protection without bulk is the goal, Hanna added, citing as an example P&G's Always Discreet Extra Heavy Long pads, which the company claims, are 45% thinner than competing products.

Long lasting absorbency for overnight protection is also now being catered for in products such as Essity's Tena Intimates and Kimberly-Clark's Poise Overnight, with an emphasis on enhanced absorption and wider backs so that activity during sleep does not displace the pads, for worry free nights.

In fit and sizing trends, K-C is emphasising what it calls shapewear with its latest version of Silhouette Premium, which stays sleek under any clothing and flexes with every movement. More sizes have also been introduced for a more accurate fit. Similar, is Unicharm's Lifefree product.

Larger sizes are also being marketed, with two examples being Medline's Fitright brief up to size 5XL, which provides a waist expansion of 106 inches and the Tranquility brief of Principal Business Enterprises with a waist expansion of 108 inches.

Sensors

Sensor technology has now been commercialised after years of development for both institutions and consumers at home.

Examples include Abana's Nova developed with MediSens, Essity's Tena Indentiti and Simavita's Smartz all provide wetness alerts and various health indicators.

They are designed primarily for institutions, but Essity has recently launched Tena Smart Care Family Care specifically designed for use at home, featuring an iPhone app to provide alerts and other information to enhance care.

New reusable options for light incontinence are available online direct to consumer from dedicated websites with four examples are Conni, Speax, Modibodi and Knix.

"These reusable pants are only for light incontinence but appeal to a growing number of younger women as a plastic-free alternative, and although a niche today, the nonwoven disposables industry should consider this competition," Price Hanna said.

Trends

Per Brandberg, research analyst at Euromonitor offered an insight into the disposable hygiene marketplace in a post-Covid world.



Medline's Fitright

Of the the three key global trends impacting the global market, two of these were apparent in the pre-Covid period but have strengthened during the pandemic; the acceleration of ecommerce and a desire for increased value for money.

However, a new trend that has emerged following the start of the pandemic is the sustained demand for hygiene products in both personal terms and in the home setting.

Important here, said Brandberg, is being able to strike a balance between requirements and affordability. "It's always hard to find a balance between having a higher price point for products with additional benefits and actually what the customer wants to pay that higher price for," he said. "Then if you add sustainability to that, which usually prompts a higher price point, it's a hard balance to strike and we can see that many large companies are focusing on this."

To get this message across to consumers, said Brandberg, it's important for brands to pinpoint and focus on what the consumer actually wants from the product and what it is they are willing to pay more for. "For example," he said, "with adult incontinence we have seen more development in the design and aesthetics of the products to make it more effective and more discrete. This has led to consumers paying a bit more for these products."

In developing markets, reusable options are often a more affordable alternative than disposables. This is demonstrated by Euromonitor's research in India, which shows that more than 50% of users are actually using reusable products whereas in the UK, this number is as low as 15%.

Africa

With a specific focus on Africa, Raymond Chimhandamba, director, Handas Consulting discussed Covid-19 induced changes in Africa's nonwovens sector and, in particular, the disposable versus reusable debate.

The key trends in the AHP sector in Africa show that wet wipes have become part of the hygiene regime of the average consumer with established brands in the hygiene space becoming part of everyday life. Wipes with more than 70% alcohol have become more popular and these changes will continue after the pandemic.

Chimhandamba also stressed the diversity of the AHP market across the African continent, with 55 countries all at different stages of development and a complex retail structure due to differing economies and consumption patterns, as well as diverse customs, religions and races.

"We are noticing that retail is very much on a growth trend in the region," he said, adding that strategies to reach consumers such as mobile trade penetration has been key to giving consumers access to products. "In Africa, the majority of transactions, led by Kenya, Nigeria, South Africa and Morocco, are mainly mobile phone based, leading to a whole new category of mobile-commerce."

Brands are also having to strike a balance with their two tier approaches between premium products and affordability. "Traditional leaders in the market in diapers have been Pampers and Huggies and they have used a two tier approach to the market. and that format has worked well," Chimhandamba said. "The newcomers to the market are using the same approach. We are also seeing growth in the feminine hygiene market with the removal of VAT driving this category."

There are also a number of challenges for the AHP sector in Africa and in particular, the issue of plastic waste. "The nonwovens sector is growing at a very fast pace and with that the issue of plastic waste and disposal has led to countries looking at legislation on single use plastics," Chimhandamba noted. "This will filter through to AHPs so manufacturers will have to deal with this. There is an opportunity for manufacturers to be proactive and start putting together solutions with retailers and local governments so that they can manage the narrative."

Labeling

Jane Wishneff, executive director at the US-based Center for Baby & Adult Hygiene Products (BAHP), offered a focus

PER BRANDBERG OUTLINED CONSUMER BEHAVIOUR

Understanding consumer willingness to pay for preferred features

Baby diaper features, willingness to pay more for specific features, US and China 2020



Source:Euromonitor International health and nutrition survey 2020 $\ensuremath{\textcircled{O}}$ Euromonitor International

on consumer trends in the United States and how they are affecting public policy.

There are three key trends in the US market at the moment, all of which have been accelerated by the coronavirus pandemic.

Firstly, there is a concerted focus from consumers and governments on making the supply chain as seamless as possible whilst there is also now a renewed focus on single use plastics, an issue that was put on the backburner during the pandemic but which now has a renewed sense of urgency.

The third key trend is the requirement for ingredient disclosure. As Wishneff explained, because consumers have been doing most of their shopping at home, the issue of transparency has entered the conversation. "Advocacy groups have been appealing for ingredients to be labeled on the product so that consumers can see this at the point of purchase," Wishneff said. "Now we have increased online shopping, we can look at sharing this information with consumers in a digital fashion, which for manufacturers is important. This is much easier to do online."

The issue of single use plastics is also seeing states working on or introducing legislation to control disposal. "We will see more of this at the local level," Wishneff said. "There are budget concerns at a local level so we envision systems where manufacturers are being required to fund disposal. This not only addresses the recycling but also addresses budgetary issues.

"Most recently the Federal Government introduced the Break Free from Plastic Pollution Act - as an attempt to rein in plastic use and to try and change the federal recycling programme. From the AHP perspective, we worked with the two main legislators that introduced this legislation. We were able to talk to them and exempt diapers, feminine hygiene and adult incontinence products. The downside is that the plastic packaging for those products is still within scope so there is still a lot of work to do in this issue but engaging in these conversations. This will become a priority issue."

With regard to labeling laws, there are two States that have passed labeling laws requiring manufacturers to list ingredients on menstrual products on the package. The two laws, in New York and California, are both very different. The AHP worked closely with California to deliver a very balanced requirement, Wishneff explained, in that it will provide consumers with consistent information done in a uniformed way offering clear information whilst also protecting confidential business information.

"We are really working on trying to get a federal agreement for ingredient disclosure on menstrual products," she said. "We don't want to see 50 different States with different laws. We really require a Federal standard." **SNW**

Instant isolation to fight infection

Nonwovens technology has played a key role in the development of temporary, air-filtered isolation rooms for the healthcare sector.

vital new role for nonwovens in infection prevention has been developed by UK-headquartered Gama Healthcare.

Rediroom is a temporary, singlepatient, isolation room designed to isolate infectious patients that can be assembled by a single person in less than five minutes.

The air-filtered isolation room features hands-free entry and exit and an integrated PPE station and is contained within a cart that can easily be wheeled to any patient, wherever they are within a hospital.

Prevention

As Gama Healthcare's clinical director, Martin Kiernan is a past president of the Infection Prevention Society and also a visiting fellow at the University of West London and conjoint fellow at the University of Newcastle in New South Wales. "At heart I'm an infection prevention and control nurse and I've worked in the NHS for thirty years in acute hospitals and community settings," he said, introducing the Rediroom concept at the EDANA Outlook online conference held from April 21-23. "Most recently I've been back at the NHS supporting the Nightingale Hospital in London which was rapidly built inside a convention centre to help us out during the coronavirus pandemic."



HYGIENE

Isolating people is extremely important, he added.

"We do it all the time because we need to separate those who have pathogens from people who are vulnerable to infection. Patients coming into healthcare settings are vulnerable because we create ways into the body that pathogens don't normally get a chance to get into, through intravenous lines, urinary catheters, surgery and more, and an organism that wouldn't bother us if we're well can cause significant problems when we're ill.

"What we tend to do, is separate people physically and that stops the contact and the environment around people becoming contaminated. We know that many healthcare pathogens can survive for months, or even years lying around in the environment if we don't physically remove them, so it makes sense to try and restrict them to certain areas. Aerosols can be a problem – as we've seen most recently with coronavirus – so segregating the infected from the non-infected, or those we think are non-infected, is a cornerstone of infection prevention and control."

But around the world, he added, healthcare facilities differ greatly.

"Not that long ago in the UK you would find 28-bed wards and while we're not in that situation anymore, it's quite common to find bays of four, six or eight patients in the UK NHS. We don't yet have the luxury of places like the USA, where patients are generally in single rooms. What can happen sometimes, if you have a particular cluster of infections, is that you may actually put people with the same infection together to protect others, but of course they may also carry other pathogens and can still transmit infections."

Infections

Problematic infections in hospitals include MRSA, norovirus, influenza, C.Diff (clostridium difficile) and even TB.

"I think of TB as pretty much like Barry Manilow – something horrible that happened a long time ago – but we still haven't quite managed to get rid of it," Tiernan said. "We've also had big outbreaks of C.Diff and studies I've done



in the past have clearly shown that the hospital wards that are the best at isolating people have the least infections. C.Diff lives in the gut and can be treated with anti-biotics, but unfortunately antibiotics can also knock out good bacteria and when some strains multiply, they produce toxins, which then lead to profuse infectious diarrhoea. These patients are isolated very promptly."

New gram-negative bacteria have also become extremely resistant to antibiotics in recent years, he added, with resistance to carbapenams, the last really new good group of anti-biotics introduced, already evident.

Bed capacity

In the UK, 93% of UK hospitals have less than 50% of their bed capacity in single rooms and there is only one that has over 80% single rooms – a brand new paediatric hospital in Liverpool. The average is 22%.

"As a result, infection control teams are constantly making risk assessments and one day a patient will be in a side room because they're infected and the next day a patient will come in with a more significant infection so the earlier patient has to be moved, Tiernan said. "The problem has, of course, been highlighted by Covid."

Increasing single bed capacity is not possible without losing beds or incurring huge building costs and causing major disruptions. Temporary facilities are available, consisting of semi-permanent static pods but while they work very well, they have solid walls and are intended to be in place for a period of around six months.

Requirements

There has been huge potential for a single use disposable system but in the eight-year development and testing period of the Rediroom, Gama's aim has been to ensure it was both functional and met all necessary guidelines.

The structure's HEPA and carbon filters remove 99.995% of particles down to 0.3 microns – more efficient than an N95 respirator and small enough to trap respiratory droplets and bacteria before air is returned to the ward.

"It was never designed to be used for aerosol as such, because it hasn't been tested in that way, but many hospitals are now using it for coronavirus because they have absolutely nothing else," Tiernan said. "The important thing is that it's deployable within five minutes and is easy to decontaminate, because the whole of the inner canopy is singleuse and disposable."

The structure consists of a PP spunbond canopy roof and double laminated PP/PE spunbond walls with PVC windows, and is sealed in place with double-sided peelable tape. All materials are treated with anti-static, antiflammable and anti-odour agents.

Thorough cleaning of the cart once the disposables are removed takes around 15 minutes.

Practicality

"The practicality of Rediroom is really helpful in a busy healthcare setting and it isn't just for Covid strategies," Tiernan concluded. "Other hospital pathogens are available and the list is growing, as well as antibiotic resistance, so this has the potential to impact greatly on healthcare anywhere around the world.

"I have to say, personally, without the nonwovens industry working at the coalface during the pandemic we would have been really struggling. I cannot speak highly enough about how it's adapted and been able to support people working in healthcare." **SNW**

Growing demand for planet-happy nappies

As diaper consumption continues to soar, environmentally friendly options are dominating the agenda.

he global diaper market size reached a value of about US\$70 billion in 2020 and is expected to grow at a CAGR of nearly 6% between 2021 and 2026 to reach a value of approximately US\$99 billion by 2026.

With the rising adult population, the prevalence of urinary incontinence has increased across the globe. Along with this, the high birth rates in emerging economies, delayed toilet training of children and the increasing trends of online purchase of baby diapers all look set to contribute to continued market growth.

Whilst the vast number of diapers produced each year demands enormous amounts of virgin polymers, there has been a significant rise in the demand for environmentally friendly alternatives. These range from biodegradable diapers that are made of eco-friendly materials to recycling technologies that contribute to a circular economy.

Recovery

Other areas where resources can be saved include the manufacturing stage itself. The number of baby diapers rejected by quality control during regular production at plants around the world each year now equates to a staggering 21,000 full trucks of waste stretching 361 kilometres each year.

If the similar reject products for adult incontinence and femcare were factored in, they would further stretch this line of trucks to 500km – all destined for landfill.

This shocking scenario was painted by Martin Scaife, chairman and CTO of Diaper Recycling Technology at the recent EDANA Outlook virtual conference, based on an assumption of the 1,000 diaper machines in operation worldwide producing an average 1,000 diapers per minute, at an efficiency rate of 83%, leading to a 2% reject rate, which is probably on the conservative side.

This is the equivalent of 16,500 diapers per minute, 1.2 million an hour and 28.8 million a day. Over a year it amounts to 8.5 billion baby diapers wasted.

At present, however, not all of this diaper waste is going to landfill, with a portion of it sold in the so-called 'B Grade' market. At the manufacturing plant the rejected products are simply baled without shredding and sent for external processing where items are manually separated into good, bad and repairable categories.

The good and repairable diapers end up being bagged up and sold at low cost in markets in many developing countries, while the bad are shredded and further sold on.

There are, however, many problems with this B Grade market, with many



countries banning the import of such waste, and prices are falling. The larger brands will not operate in the space since it would effectively mean competing with their own products with low cost versions, and also carries significant brand risks and dangers by association.

Another option for diaper manufacturers is to have their waste shredded and sold for incineration. The diapers do have some burn value, but transportation costs generally outweigh what the manufacturer can recoup. On average, the cost recouped is around \$12 for every \$100 of waste sold for incineration.

Landfill, meanwhile, is the least attractive option since nothing can be recouped at all, only additional costs added.

As such, internal processing makes perfect sense and Diaper Recycling Technology's latest system allows the separate recovery of the plastic, SAP and pulp in the diapers.

"Everything can be recovered for reuse in production and one-to-one savings, eliminating transportation costs to establish a truly circular system," Scaife said.

While recycling systems have been produced for the past twenty years, their adoption has been very low, he added, primarily due to their huge energy requirement, as well as the space they require, and the additional labour costs incurred. In addition, there have been particular problems with damaged SAP and pulp and plastic not being fully separated.

Diaper Recycling Technology's latest system is achieving much higher recovery – on average of 75-80% – while considerably reducing the energy requirement.

"This is the single biggest enhancement to our latest system, with a significant impact on the payback period," Scaife said. "With our MOQ1 system, processing is on a single diaper pick-up basis with a number of benefits in terms of accurate shredding and the full opening up of the diaper core."

Multiple sensors and scanners and gravimetric feeding ensure consistent separation to establish consistent and very clean streams of pulp, plastics and SAP with no contamination.

"Our technology allows diaper

manufacturers to establish a fully circular process within their plants, which is good for both their profits and the planet," Scaife concluded.

Composting

For its part, diaper manufacturer Ontex has been working with circular economy company Les Alchimistes to test the compostability of diaper pads.

The project requires cooperation between different partners: from suppliers of materials, from manufacturers like Ontex, to waste collection and composting partners using suitable technology. As part of the project, Ontex and Les Alchimistes have set up a pilot project at the latter's industrial composting site near Paris with the aim of proving that composting of Ontex diaper pads is possible, and that waste and incineration can be reduced.

The companies are also working Australian brand gDiapers, which was the world's first Cradle to Cradle certified hybrid diaper which provides the best of cloth and disposable diapers. By separating the diaper into two parts, single use plastic is replaced with breathable and waterproof textiles, while the disposable insert can be composted.

Together with gDiapers, the Ontex Little Big Change brand has developed a new diaper system which consists of a reusable outer diaper made of cotton and a disposable diaper pad which is designed to be industrially compostable. "We are now testing if the diaper pads can be composted on an industrial scale by working together with a test group of 30 families in Paris who subscribe to Ontex's baby diaper service Little Big Change," explained Annick De Poorter, executive vice president R&D, Quality and Sustainability, Ontex.

"Our goal is to make the separate collection and composting of used, compostable diapers a reality," added Maïwenn Mollet, director of the Fertile Diapers program at Les Alchimistes. "We are very happy that Ontex and their brand Little Big Change are joining our mission. Ontex has the engineering knowledge and resources to design diapers that can be compostable. Our goal is to create a new circular economy loop with Ontex and other like-minded companies and to compost 500 million diapers by 2030."

The announcement of the industrialscale composting test with Les Alchimistes follows the news of Ontex's collaboration with Woosh, a Belgian start-up that is on a mission to recycle diaper waste into raw materials and, in doing so, create a large-scale solution for diaper recycling. Although Woosh takes a different approach to the one adopted by Les Alchimistes (focusing on recycling rather than composting) both projects fit with Ontex's ambitions and sustainability strategy for 2030 to reduce diaper waste through different technologies.

"As a major player in essential personal hygiene, we recognize the need to find alternatives to landfill and incineration for our used products," De Poorter added. "We are examining ways to reduce CO₂-emissions all through their different life cycle phases. As we ourselves move towards a circular economy business model, it is a natural and logical step to work together with other companies to make our diapers more recyclable or compostable."

Unicharm

In Japan, Unicharm, the world's third largest diaper maker, is working to 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.

Collection

A key element of the supply chain for recycled diapers involves the collection of used items. In the US, the new Redyper platform for the collection of Dyper compostable diapers by TerraCycle was launched in February this year in the San Francisco Bay area and is now 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," explains Dyper founder Sergio 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," said Michael Waas of Terracycle. "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. Dyper subscribers want to help ensure their used diapers don't add to the more than 20 billion diapers filling landfills in the US every year."

Hybrid

In a response to market demands, we have also seen the introduction of partly reusable Pampers Pure Protection Hybrid Diapers from Procter & Gamble.

A recent Pampers survey found that

nearly half of all parents have tried cloth diapers but not as many continue to use them because leaks are common and changing them more frequently means more wash cycles.

Pampers Pure Protection Hybrid Diapers are a bid to bring the best of both disposables and durables by pairing soft, reusable cloth diaper covers with disposable inserts. Made to lock wetness away from skin for up to 12 hours, they keep a baby's skin dry while producing less waste.

"At Pampers, we've spent thousands of hours speaking with parents globally about what will best fit their needs," said Marty Vanderstelt, senior vice president for P&G's North America Baby Care business. "Pampers Pure Protection Hybrid are for parents who want a diaper that produces less waste, but still seek the convenience and protection of a disposable diaper. This is one of our many steps forward in the journey to a sustainable planet."

The hybrid diaper uses trusted Pampers technology to provide superior dryness and leak protection while using 25% less disposable materials.

The disposable inserts are also made with a plant-based liner, enriched with shea butter with an absorbent core and high leg cuffs to help prevent leaks.

The 'one size fits most' super soft reusable cloth covers are made with premium fabrics and feature adjustable leg elastics and waist snaps that will last through multiple changes. The machine washable covers are easy to clean with simple laundering instructions.

The diapers are hypoallergenic and contain no fragrances, elemental chlorine, latex (natural rubber), or parabens.

Over the past 25 years, P&G points out that it has reduced its disposable diaper weight by 50% and its packaging by 70%.

HYGIENE

Believe

This year has also seen the launch of a new sustainable and socially responsible diaper brand launched in the US.

Believe Diapers, which says that one in three U.S. families struggles to afford diapers, offers products made with bamboo, a renewable resource that is also hypoallergenic, antimicrobial and odour resistant. These super-soft, absorbent bamboo diapers are also free of all harmful chemicals, preservatives and additives.

As part of its offering Believe Diapers is also working with the Good+Foundation to provide a 1-for-1 charitable donation model, donating one diaper to a U.S. family in need for every Believe Diaper purchased. "Born of the insight that one in three U.S. families struggles to afford diapers, philanthropy is at the Brand's core," the company said in a statement. "Diaper need has a negative ripple effect, impacting an entire family's ability to work and attend school. To help address the shortage, Believe Diapers has pledged to donate one million diapers to U.S. families in need at launch, in addition to their 1-for-1 diaper matching donations."

Believe Diapers' CEO Joe Masi explained: "A little over a year ago, my wife [co-founder Uli Herzner] and I became aware of the extreme diaper need in the U.S. and furthermore, the implications caused by that lack of resource. From post-partum depression to the inability to enroll children in





daycare, we founded Believe Diapers in an effort to alleviate some of this largescale need."

Diaper need is also a cause familiar to Good+Foundation. "Last year we saw a 500% increase in diaper requests as under-resourced families continue to struggle with diaper need in the US," said Katherine Snider, CEO of Good+ Foundation. "Tens of thousands of families across the country will benefit from this generous donation from Believe Diapers."

"While everyone deserves diaper security, creating a sustainable diaper out of respect to the environment is also extremely important to us – especially for the next generation around which our diapers will be placed," Herzner added. "As diapers are a leading cause of pollution, Believe Diapers are crafted with renewable and sustainable materials in an effort to lessen the environmental impact and footprint associated with disposable goods."

Drylock

A further consideration for sustainable diapers is the packaging element. For this market, Mondi has launched the paper-based EcoWicketBag for the baby diaper ranges of Drylock Technologies, to bring new sustainable packaging to the hygiene market globally.

The global hygiene products manufacturer approached Mondi to create a more sustainable alternative to its existing plastic diaper packaging that would travel well, have strong shelfappeal, and protect the product, while also using renewable resources and significantly reducing its CO₂ footprint.

"We went to Mondi because of their expertise in paper packaging and their extensive knowledge of the global hygiene market," said Werner Van Ingelgem, R&D director at Drylock. "Consumers are looking for more sustainable packaging that is kinder to the planet without compromising on the integrity of the product. With the EcoWicketBag, they can be confident of product quality and packaging sustainability."

The key advantages of using paperbased solutions is the recyclability of paper and also that consumers are more likely to know how to dispose of it correctly. The EcoWicketBag can be placed in existing paper streams, even in countries with the strictest recycling regulations. An EcoWicketBag made out of fully compostable materials is also available.

Mondi also ensured the EcoWicketBag fits with Drylock Technologies' existing plant processes, meaning it is the first paper wicket bag range that can be filled and sealed on existing machines.

"We work closely with our clients using our customer-centric EcoSolutions approach to create packaging that is fit for purpose – using paper where possible and plastic when useful," said Claudio Fedalto, COO of the Paper Bags business of Mondi. "With Drylock Technologies it was key to reduce the amount of plastic used, meet our customer's sustainability targets and protect the products for consumers.

"By liaising closely and asking the right questions from the outset, we have been able to deliver on all of the above." **SNW**

Save and prosper

International technology Group Andritz has developed a new system aimed at helping its customers optimize their raw material consumption.

he optimization of resource management, especially reducing the consumption of raw materials and other substances used and also keeping resources in use for as long as possible, are decisive factors in enabling nonwovens producers to offer competitive and sustainable products.

A key factor here is the need to maximize the evenness of the product across the entire production line. With this in mind, the weight profiling product range from Andritz, which consists of ProDyn and ProWid, has now been extended with the addition of ProWin.

This new development, which is a combination of the two existing systems ProDyn and ProWid, allows nonwovens producers to achieve optimum weight profiling at the crosslapper delivery and increase their process speed by up to 15% at the same time.

ProWin also combines the long-term process experience and in-depth knowledge Andritz has on needlepunch lines with new software to synchronize action across the line.



"We have developed a self-regulating, advanced technology to reduce fibre deposits at the edges of the web and eliminate the "smile" effect across its width," explained Guillaume Julien, head of Needlepunch Sales at Andritz Nonwoven. "ProWin enables producers to optimize the CV ratio autonomously and precisely while also generating significant fibre savings of up to 10% and increasing production speed. Thus, it also provides a faster ROI.

"When it comes to the spunlace process, a better product quality can be

IMPACT OF THE PROWIN SYSTEM ON FIBER DISTRIBUTION



WEB PROFILE WITH STANDARD WEB PROFILING



WEB PROFLE WITH PROWIN SYSTEM



Spunlace pilot line at the technical center in Montbonnot, France. Image: © ANDRITZ

obtained by ensuring that the different equipment units in the production line are consistent with one another. The TT card, the Jetlace hydroentanglement unit, and the neXdry throughair dryer are the perfect combination to obtain premium visual quality and characteristics in the web. For an equivalent amount of fibres, this set-up is designed to produce an even web with significant bulkiness and an excellent MD:CD ratio without impacting the production capacity.

"Maximizing performance by minimizing the raw material input and the amount of waste produced is a real driver of cost optimization. This is why Andritz has created and integrated a solution that allows nonwovens producers to retrieve the wasted edges of their spunlace fabric and re-use it as recycled fibres. As a result, roll-good producers can even obtain the same web characteristics as when using virgin fibres, and most importantly, the exact same quality."

Under its Metris brand, Andritz also offers a number of digital solutions including several service apps for optimum customer benefit.

The Metris Cost Management app is used to track raw material consumption. It is an advanced system aimed at monitoring fibre consumption and allowing in-depth diagnoses to investigate raw material losses and savings grouped by different process areas. SNW



The new safe spaces

Consulting editor **Adrian Wilson** outlines the current threats and opportunities for automotive nonwovens.

he global sales of battery electric vehicles (BEVs) and plug-in hybrid vehicles (PHEVs) amounted to 3.24 million in

2020, up 43% on 2019 (2.26 million). Meanwhile the total production of cars and light vehicles globally in 2020 was 77.6 million, down 16% on 2019 (98.1 million).

Many countries have set targets for ending the sale of new petrol and diesel vehicles between 2030 and 2040. Norway will end sales of them in 2025.

If EV growth continues to gather such momentum, it could potentially reach the level of all of the 2020 car and light vehicle production in just eight years' time, and that of 2019 in nine.

Expansion

Nonwovens have expanded rapidly in the automotive sector over the past two decades as automakers and their component suppliers have looked to decrease costs by reducing the weight of vehicles.

The aim has been to lower fuel consumption and carbon dioxide (CO_2) emissions and comply with new legislation.

The use of nonwoven fabrics in the European automotive industry alone grew by 11.3% per year between 2010 and 2015, despite the fact that the production of cars and light vehicles in Europe grew by only an average 1.3% annually in the same years.

This growth has now slowed, but it underlines just how much nonwovens have been included in the lightweighting designs of vehicle manufacturers and reveals that a good deal of material substitution has already taken place.

The end of the combustion engine for passenger cars, however, will make the nonwovens employed for engine insulation, and engine filtration systems, obsolete.

Some of the most notable trends involving the use of nonwovens in the automotive industry in recent years include:

- Alternatives to leather and plastics in seating and upholstery.
- New multi-material combinations with polyurethane (PU) foams, or the direct replacement of PU foam.
- Nonwovens as exterior components.
- Natural fibre nonwovens as reinforcements in composite parts.

- Recycled carbon composites as new nonwovens.
- New materials for electric and fuel cell vehicles.

Over the past year, however, vehicle interior cleanliness and air quality has become the number one trend.

Safer surfaces

The Covid-19 pandemic has greatly increased the willingness of car users to invest in solutions to ensure the prevention of pathogens on interior surfaces, as well as those to provide cleaner air in vehicles, according to a major survey by Asahi Kasei.

As a result of the pandemic, the use of public transport and ride sharing services has declined severely across the world – contrary to many sustainable initiatives – while cars have become viewed as safe, infection-free spaces.

The Asahi survey, conducted in December 2020, suggests that the pandemic will have a lasting effect on existing and future mobility concepts – and on the materials and technologies used inside vehicles.

While in the past, automotive interiors needed to be comfortable, attractive and

smooth to the touch, overall cleanliness and safety have added a new dimension to buyer requirements. The development of antimicrobial and antiviral materials and treatments has understandably soared since the start of Covid-19.

The Asahi survey questioned 500 vehicle users in each of the global automotive core markets of Germany, the USA, China, and Japan on their preferences.

While premium and lasting interior looks continue to gain importance, a large majority in each market saw the significance of:

- Water and dirt repellent surfaces.
- Surface and seating materials that are easy to wash.
- Advanced air filtration systems filtering the outside air entering the vehicle.
- The survey also indicated the willingness of many new car buyers to pay premiums of around €1,000 each for two theoretical optional packages:
- A Surface Protection Package, consisting of interior materials that provide anti-viral/anti-microbial properties, stain and odour resistance and improved weathering and scratch resistance.
- A Cabin Protection Package, including an automated ventilation system to eliminates microbes and pathogens in cabin air, monitor CO₂ levels and provide active occupant sensing for child/pet left behind.

Alternative leathers

Perfectly chiming with this trend are microfibre-based artificial leathers or microsuedes which are now the preferred option to natural leather for many leading car manufacturers and their customers.

The benefits they bring include breathability, softness and scuff resistance, as well as the flexibility they allow in seat and component assembly and their ability to take bold colours.

They also have compelling sustainability messages.

As a result, these materials command premium prices.

The Chinese market has been going mad for these materials in the past five years, obliging Alcantara – perhaps the most famous of these materials – to double its capacity in 2020 as a response.

Alcantara –is based on Toray's "islands in the sea" bicomponent fibres of around 60% polyester and 40% polyurethane, which are then cut into staple fibres and have the "sea" components dissolved out, before being needled and dyed.

Since 2011, Alcantara production in Italy has been carbon neutral from cradle to grave.

Dinamica

A similar product is Dinamica, a suedelike microfibre fabric made by Asahi-Kasei, and also manufactured in Italy by its subsidiary company Miko.

Dinamica employs recycled polyester microfibres which are manufactured into nonwoven fabrics and then finished by a special water-based process developed by the two companies.

This avoids the damage to the fibres associated with conventional carding and needlepunching. The use of water-based



dyeing agents and the latest manufacturing also keeps carbon dioxide (CO_2) emissions to a minimum.

The material conforms to all standards in respect of volatile organic compounds (VOCs), anti-fogging, odours and the absence of harmful substances.

ELeather

A different kind of surface material for public vehicles is ELeather, which is now employed as seating material by over 200 airlines, and in thousands of trains and buses.

ELeather is not an artificial leather made from microfibres, but instead is composed of a recycled fibre that is made from chopped up waste leather shavings that are normally sent to landfill.

It is 40% lighter than conventional leather and manufactured by a patented process adapted from conventional airlaid and hydroentangled nonwovens production routes. This involves altering and grinding the waste leather trimmings and split hides to produce individual leather fibres.

Exterior components

In other general trends, while for many years, densely needled nonwoven layers have been used as acoustic insulation components for the interior of vehicles, they are also now being employed for the exterior – as undershields and outer wheel arch liners.

Nonwoven undershields as replacements for the heavy polyvinyl chloride (PVC) layers that have previously been applied to the rear of the floor panel provide a considerable reduction in weight at a comparable price.

They also provide a number of other significant advantages.

PU replacement

Impressive growth has also been achieved in the automotive industry by PU foams.

Foams, like nonwovens, have been employed primarily because of their low weight and low cost. Often this is in laminated combinations with nonwovens and surfacing fabrics for applications including seating, headliners, A, B and C pillars, and acoustic and thermal insulation. Foams, however, are restricted in

AUTOMOTIVE

the breathability they can provide and there are environmental issues related to their production.

The PSA Peugeot Citroën group is now replacing the PU foam in the seating of its standard vehicles with melt-bonded nonwovens.

Natural fibres

The return of natural fibres in automotive applications began in the 1990s, initially in Europe, and a few years later in North America.

Car makers started advanced developments on door panels, headliners, package trays, dashboards and trunk liners based on natural fibre composites – challenging mainly glass fibre reinforced plastic (GFRP) composites.

Of particular influence was the introduction of the door panels in the Mercedes-Benz E class of 1994, which introduced a flax/sisal fibre mat embedded in an epoxy resin matrix.

Since then, the use of such natural fibre substrates has become relatively common, certainly in European cars.

The Nova Institute in Germany reports that around 80,000 tons of wood and natural fibres are now employed in the 150,000 tons of composite parts for cars and trucks made in Europe annually.

Recycled carbon

Recycled carbon fibre-based products could well become a major market for automotive nonwovens.

The Airbus A380 and Boeing 787 Dreamliner have expanded the use of such composites considerably, with content increasing from 23% on previous aircraft models to more than 50%.

One downside, however, is what to do with the carbon fibre composites once all of those aircraft reach the end of their useful life.

So far, nonwovens are being viewed as the only realistic solution for secondlife materials.

Many companies are now actively working with Airbus and Boeing on nonwovens based on recycled carbon.

New for electric vehicles

A number of nonwovens companies are now manufacturing battery separators in what is poised to become a huge market.





Typical hybrid vehicles contain 50-70 lithium-ion (Li-ion) batteries; plug-in electric vehicles with range-extending motors have 80 to more than 200 batteries, and fully electric vehicles carry 150 or more.

Within each battery, the separator is a sheet positioned between the two electrodes. It functions as a barrier that prevents the electrodes from touching and shorting while letting lithium ions pass back and forth to allow the charge and discharge of the battery.

Representing an entirely new nonwoven applications meanwhile, Mann + Hummel has developed a brake dust particle filter for the latest electric vehicles.

Braking in city traffic creates significantly more dust than exhaust emissions the company points out – every braking action creates dust through friction on the disc and pads. This mainly comprises particulates, more than 90% of which are ultra-fine, and therefore harmful to both health and the environment.

The synthetic nonwoven filter media is resistant to temperature and corrosion and the company is also developing sturdier versions made from both glass fibers and stainless-steel fibers.

Significantly, Mann + Hummel is also

now employing nanofibre layers in its cabin air filters. These were previously only used in engine filters.

Fuel cells

Freudenberg, meanwhile, believes that in the longer term, fuel cell cars will come to the fore, since compared to batterypowered cars, they have a longer range, can be refueled in only a few minutes, and are also suitable for buses and trucks.

Freudenberg's gas diffusion layers (GDLs) ensure that hydrogen fuel is converted into power as efficiently as possible. They have a three-dimensional fibre structure and a chemically stable coating of electrically conductive carbon particles which makes them highly functional.

Within the single fuel cell stack, the GDL is positioned between the bipolar anode and cathode plates at either side of the catalyst coated membranes. The material must be both thin and stiff as well as porous but thermally and electrically conductive – and keep water out while ensuring the membranes in the fuel cell remain wet.

This article has been adapted from a presentation made at EDANA's International Nonwovens Symposium, held virtually from June 9-10. SNW

When plastics become food

Adrian Wilson reports on a far-reaching conference focused on the move to sustainable raw materials and feedstocks for plastics, nonwovens and textiles.

dentifying the technologies that have the greatest potential for large-scale impact in tackling waste and pollution was the theme of the Rethinking Materials Plastics and Packaging Innovation conference held online from May-19-20th.

"The application of advanced materials has the potential to transform the lifecycle of many of today's everyday products and dramatically reduce the volume of currently recyclable waste, said Jennie Moss, founder and MD of organiser Rethinking Events, based in Brighton, UK.

She spoke of a new age for material innovation which is changing the way products are made and of industry looking to move away from unsustainable raw materials and feedstocks.

Cultured meat

Among such products, of course, are many nonwovens currently based on plastics and a number of the innovations introduced over the two days of the conference explored potential alternatives to current hygienic disposables but also entirely new application areas, such as cultured meat.

It is estimated that by 2040, 35% of all meat consumed will be cultured – produced by the *in vitro* growing of animal cells – and a huge and unique opportunity is being pursued in this rapidly-growing market by nanofibre producer Gelatex. In growing meat, it is necessary to have a scaffold in order to achieve a steak-like structure.

"Nanofibres are already widely used for cell cultivation and in growing meat, it is necessary to have a scaffold in order to achieve a steak-like structure," said Mari-Ann Meigo Fonseca, co-founder of the company based in Tallin, Estonia. "Otherwise, the meat would just be like a mush of cells – like paté. Other possible solutions for this application have proved too expensive but now, thanks to our proprietary technology, we



can make cultured meat a reality at competitive prices.

"We have already developed an edible plant-based scaffold that supports muscle-tissue formation. It has a unique 3D structure and works with many cell lines, meaning it can be used to make pork, beef or fish, and it is the most scalable and affordable solution available for cultured meat now. We are already testing with eleven cultured meat companies and many of them are already customers."

Proprietary technology

Fonseca said that Gelatex has developed a proprietary system for producing nanofibre nonwoven sheets that is much more productive than existing electrospinning technology and is also able to cost-effectively process biofibres at scale.

"High production costs have meant that many potential new nanofibre products have not been pursued to date, because the biggest electrospinning unit that costs 8 million can currently produce only 360g of nanofibre an hour," she said. "With our prototype machine – built at a fraction of that cost – we can already produce one and a half kilograms per hour, which is enabling us to reduce the cost of producing nanofibres by over 90% – and we aim to increase the capacity to 10kg per hour this year. Our method also doesn't use high voltage, making it safer."

Growth

The use of nanofibres in general is growing rapidly as a result of some of the unique properties they possess, Fonseca added. Due to their extremely small diameter, nanofibres have a massive surface area to mass ratio and many chemical and physical processes occur only on the surface of objects and not in the bulk of a material. Nanofibres can therefore be immensely useful in functions where the availability of surface area is important, such as energy storage, filtration, drug delivery etc.

Nanofibrous materials are also highly porous which allows for high breathability filters and efficient tissue engineering scaffolds and they also have very low densities, making them extremely light.



Gelatex is currently focused on biodegradable and biobased raw materials but its versatile technology works with many different polymers and solvents.

"In some applications we have developed our own products, while for other applications we first provide a nanofibre development service to customise the properties of the material and then we start manufacturing for customers," Fonseca said.

Licensing is also something the company is considering in specific cases, she added.

Facemasks

"In filtration, for example, the problem we are solving is that currently, most filters and facemasks are made from petroleum-based materials that take hundreds of years to decompose. The most efficient filters contain nanofibres, and it is possible to achieve similar results with biodegradable polymers, but again the cost has been too high. For the first time we can make biodegradable filters cost effectively. We have done a proof-of-concept in this field and are currently working on further developments with customers."

Format change

Continuing the theme of edible new materials, Xampla is commercialising an advanced process for structuring plant proteins – without any chemical modification or synthetic addition – into functional plastic-like forms with a wide array of potential applications. The supramolecular engineered proteins (SEPs) have been developed over the last fifteen years at University of Cambridge and Xampla is focusing on replacing today's microplastics and single use applications with them.

"Our aim is to be a leader in this race, which is happening right now, by looking at what the world looks like after plastic," said CEO Simon Hombersley. "Plastics have had a hugely positive impact on the world and unfortunately a less positive one too, but they have only been in existence for a lifetime and by 2040 there will be far fewer of them around. We believe the value chain for alternatives to plastics will be much like the industry today, dominated by just a few big companies, and we aim to be one of them."

B Corp

As the first university spin-out to become a Certified B Corp, Xampla joins the growing list of companies legally required to consider the impact of their decisions on workers, customers, suppliers, community and the environment.

In January this year, the company closed a £6.2 million seed finance round led by the backers of Zoom and is being chaired by Jeff Seabright, the former chief sustainability officer of Unilever.

Silk

"We have developed a plant-based product which degrades completely naturally at end of life," Hombersley said. "It's actually an edible material, unlike most of the polysaccharide materials out there at the moment which require crosslinking. It's a scientific breakthrough that comes from the high performance of protein. Silk is a protein material and that's where the development of this process started."

The company's production process is also fully scalable, he added.

"Essentially these are very big problems we're seeking to solve so there's no point in doing it if you can't scale your production. Our focus is on microplastics and we have a lead customer in edible microcapsules for nutrients going into soft drinks. That's a unique product, but we're also focusing on fragrance microcapsules, driven by the European Chemical Agency's microplastics ban which is a huge commercial opportunity for us to disrupt a number of different sectors in personal care and home care."

Drop ins

Another initial application will be in single-use sachets.

"Unilever uses 50 billion single-use sachets a year for personal care alone and they are currently not easily recycled," said Hombersley. "The edible nature of our product is significant, because what is an edible plastic? It's not a plastic anymore, it's a food, and as we move towards new materials that are replacing plastics, the lines between packaging and food and format will all be changing. We're particularly interested in those format change applications, so soluble packaging is an obvious one." What is an edible plastic? It's not a plastic anymore, it's a food, and as we move towards new materials that are replacing plastics, the lines between packaging and food and format will all be changing.

The new Xampla sachets are drop-ins for existing roll to roll plastic casting applications and one product to already arise is an edible, cookable stock cube package that can be simply dropped into the cooking pot with its packaging in place.

"That's just one example of the format change products we're looking to develop with forward-looking companies," Hombersley said in conclusion.

"We have a highly-defensible technology and we are currently building a commercial team, recruiting a lot out of P&G and Unilever, and we've already got some initial customer traction with our pellets and resins as drop in solutions as the way to scale."

Feedstocks

Genomatica, based in San Diego, California, has been in the business of drop-ins since 1998 and is set on driving material change as widely and quickly as possible through the replacement of petrochemical-based feedstocks with renewable substitutes, most notably the development of 100% renewable nylon 6.



Providing an update on the company's progress, CEO and founder Christophe Schilling said that powered by biology, Genomatica has a number of technologies that are now commercial and impacting on markets including plastics, apparel, cosmetics and even nutrition.

"These are delivering sustainable benefits at scale on the path to seeing hundreds of thousands of products being made, and we have a deep pipeline of further products under active development and a strong track record of bringing technologies from ideation all the way to commercial realisation," Schilling said.

Supply chain

Genomatica partners with companies up and down the supply chain, including Aquafil, BASF, Covestro, Cargill, ExxonMobil Novamont, and its blueprint begins with a focus on widely established markets.

"Our feedstock substitution using renewables has started firstly with biogenic carbon coming largely from plants and will ultimately be complemented with recycled carbon coming from the reuse of materials," he said. "We make the microorganisms from scratch and have developed a complete manufacturing process for them. The products we target have existing established markets so we're looking for performance that's equal or better to what's being replaced, and comparable economics, along with the sustainable gains."

BDO

In 2016, the company delivered a plant to Novamont in Italy that is producing an annual 30,000 tons of renewable butanediol (BDO) – a key ingredient in the production of plastics, elastic fibres and polyurethanes

"This is a market today of 2.5 million tons and this is the first renewable plant competing in a world that is based entirely on coal or crude oil, or in some cases natural gas," said Schilling. "This is biotechnology competing at scale, with competitive economics and with outsized sustainability gains."

With Brontide-branded renewable

RAW MATERIALS

butylene glycol (BG) Genomatica has not only developed the product but is also manufacturing and delivering it to market

BG is used in shampoo, conditioners, sunscreen and lotions, as well as in facemasks, because it adds moisture and conditions hair and skin. It also works as a solvent, keeping other ingredients such as dyes and pigments from clumping up inside a solution.

"Brontide replaces both fossil-based and sometimes carcinogenic feedstocks and we are pushing it at scale of thousands of tons into the personal care market," Schilling said.

Plant-based nylon

In a partnership with Aquafil, Genomatica is now building a demonstration plant for the production of 100% plant-based renewable nylon 6, aiming to produce showpieces in the next year, followed by limited edition collections and then full commercial production within the next five years.

"This is a \$26 million market where we can make a high-impact reduction in carbon footprint and revamp the apparel market, as well as carpet and flooring," Schilling said. "Brand owners are increasingly realising that a low carbon future is a winning strategy to pursue and we're doing the heavy lifting, and at scales that matter. The problem we're addressing is of course the massive and wasteful linear consumption of carbon and the challenges with that in terms of emissions, deforestation and waste."

Algae

Renana Krebs, CEO of Algaeing, based in Petah Tikva, Israel and Berlin, Germany, spoke of the development of a patented new bio-based formulation derived from algae, from which both dyestuffs and fibres can be created.

Algaeing's dyesetuffs utilise various algae species to produce a wide range of appealing colours. The benefits of using an algae bio-source go far beyond the removal of chemically synthesized colorants, and include vastly reduced water consumption, chemical/fertilizer use, and carbon dioxide emissions.

During May, the company announced its collaboration with leading spunmelt



#rethinkingmaterials

nonwovens producer Avgol which is focused on modifying the aesthetic qualities of sustainable polyolefin based spunbond and meltblown fabrics.

"We're very excited to bring our technology into the realm of spunlaid nonwovens," said Renana Krebs, CEO of Algaeing. "The opportunities to utilise our technology in Avgol's sustainable component materials and bring colour, as well as the skin wellness attributes of algae-derived products into personal care items is an opportunity to reduce human impact around the world on a large scale."

The two companies have tested the Algaeing colorant technology in proof of concept and prototyping phases and are now preparing to enter the next stages of the product introduction pipeline.

The application of the integrated colour to nonwovens will initially concentrate on the hygiene and medical/personal protection equipment markets. Specifically products in the first-generation launch will be body liner materials for absorbent hygiene products (AHPs) and face mask/face covering components.

Commercialisation

The Rethinking Materials Plastics and Packaging Innovation conference attracted over 500 delegates for two days of farreaching discussion and debate on all aspects of tomorrow's circular economy.

During a panel on the subject of integrating biopolymers into existing supply chains, for example, Rich Altice of NatureWorks said that, having commercially produced Ingeo biopolymer since

2002 – three billion pounds to date – the company started to see big changes around 2017 due to a combination of active consumers, NGOs and legislation such as the European Single Use Plastics (SUP) Directive.

Brands, he said had become a lot more active in going beyond the fact that the biopolymer is a green solution and the performance characteristics of products and starting to really focus on the benefit to the end consumer, in addition to bringing together a highly complex supply chain.

Customer awareness, more scale and legislation are pushing the needle.



Thomas Philipon, of Total Corbion, which has been producing PLA in Thailand since 2018 was in full agreement.

"Customer awareness, more scale and legislation are pushing the needle," he said

Danimer Scientific's Stephen Croskrey noted the commercial launch of Nodax PLA as a naturally-occurring polymer that is fully biodegradable and compostable.

"It gives our customers the full range of end-of-life scenarios –from industrial compostable to marine biodegradable," he said. SNW

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Soiled to soil

The Virtu-Wool conference offered information on the latest sustainable diaper solutions. **Tone Skårdal Tobiasson** reports.

oo and menstrual blood are facts of nature that have little to do in the limelight of fashionable textiles; but then nonwovens are suddenly on everyone's lips when it comes to wool. During the Virtu-Wool conference it was quite in vogue.

EVENTS

"Globally, 20 million disposable nappies are produced every hour, each nappy contains one cup of crude oil and every minute over 300,000 nappies enter landfills, incineration or pollute our environment including our oceans," explained Derelee Potroz-Smith, CEO of Woolchemy New Zealand, who seems to have found a sustainable alternative: the wool-nappy.

During the New Zealand based twoday conference presenting novel research and new business ventures, new applications for so-called "strong wool" were a central theme. As one presenter explained, in 2020, 3 million sheep skins were dumped to landfill in New Zealand alone. Because of lock-down they were neither sheared nor processed as sheepskins. In a country with a total of 26 million sheep, that is a substantial amount of wasted resource.

Several entrepreneurs and researchers are coming up with alterative uses for wool that does not entail spinning a yarn; such as 'strong wool' which, often too itchy for

THE NEWEFLEX PROCESS







NeweFlex nonwoven fabric.

most people to consider wearing, when processed into nonwoven materials, comes out lofty and soft. Potroz-Smith has found multiple uses for the biocomposite in disposable and durable 'everyday healthcare' categories, such as menstrual pads, cleansing pads, wounddressings and – nappies. "When the EU implements its ban on single-use plastics, how will this effect nappies and other sanitary products?" was the rhetorical question.

Many would wonder if the raw material for these sanitary products, if they are single- or multiuse, would be prohibitive as wool is known to be more expensive than synthetics; however, strong wool is a lot cheaper than cotton, viscose, PLA and the other alternative fibres, because coarse wool has been undervalued for many decades to unsustainable levels.

> Woolchemy's patented nonwoven, neweZorb is both durable and washable, and on

	Naturally odor resistant & antibacterial
1	Thermally moulds to skin contour
(> Locks moisture away from the skin
1	Distributes moisture to the absorbent co

top of that, also home-compostable. "While normal wool absorbs 30% of its own weight in moisture, neweZorb is up to 25 times more absorbent, giving it a competitive edge in the consumer trend towards planet-friendly hygiene products. Wool's innate ability to regulate temperature and neutralize odours in nappies, sanitary and incontinence pads are very practical features not currently catered for in the hygiene industry," she added.

Taking plastics out of our everyday healthcare products and addressing the dirty business of disposable nappies is very much about sustainability; but also, the practicalities. As the material is so absorbing, and wool has the added benefit (as the only fibre in the world) of insulating and staying an even temperature when it absorbs moisture – babies can sleep better without feeling cold – as they would with normal disposable nappies.

"As the average toddler is toilettrained after 36 months, as opposed to 18 months (such as the case 50 years ago) – due mainly to the increase in working moms and other factors – we are talking a substantial environmental cost, "Potroz-Smith ventured. **SNW Tone Skårdal Tobiasson** *tone@nicefashion.no*

Pollution pandemic

A report suggests that the vast amounts of PPE litter found in 2020 are the 'tip of the iceberg'.

cean Conservancy has published a report revealing that its global network of International Coastal Cleanup (ICC) partners and volunteers collected 107,219 items of personal protective equipment, or PPE, from beaches and waterways worldwide in the second half of 2020 alone.

The report, *Pandemic Pollution: The Rising Tide of Plastic PPE*, comes approximately a year after the World Health Organization first declared the Covid-19 outbreak. While scientists have published various estimates of the amount of masks and gloves used and ending up in the environment since the start of the pandemic, few studies have used actual litter counts on such a global, consistent scale to measure the problem.

Based in Washington DC, Ocean Conservancy experts believe the 107K+ figure is likely to be a vast undercount. The organisation added PPE as a data category to its mobile app Clean Swell in late July 2020, by which point many coordinators and volunteers had already been recording PPE data under other data categories such as personal hygiene. Notably, the amount of personal hygiene litter recorded in the app between January and July 2020 was three times higher than what was recorded in that same time period for each of the previous three years. Furthermore, in a survey of more than 200 ICC coordinators and volunteers, 30% of respondents reported that they did not record PPE data at all, again suggesting that the PPE numbers are likely a vast underestimate of what was in fact seen and collected.

"The item counts are always going to reflect volunteer turnout on the ground, and there's no doubt that Covid-19 had a significant impact on volunteers' ability to go out in their communities and conduct cleanups," said Allison Schutes, director of Ocean Conservancy's International Coastal Cleanup. "But that's exactly what's so remarkable about these numbers. Despite the limitations, despite the fact that not all of them were able to record data, volunteers collected more than 100 thousand items of PPE in under six months, and we know that's just the tip of the iceberg."

Other notable findings from the report include:

• 94% of ICC volunteers and coordinators surveyed reported observing PPE pollution at a cleanup in 2020.

• Half of the survey respondents reported seeing PPE pollution on a daily basis and another 42% saw PPE in their communities on a weekly or monthly basis.

 Nearly half of the surveyed volunteers reported that a vast majority of the PPE (75%+) was single-use/disposable.

• 40% of surveyed volunteers found five or more PPE items at a cleanup and more than 50% of surveyed volunteers found 1–5 PPE items at a cleanup.

More than 80% of survey respondents identified face masks as the most common form of PPE they encountered.
37% of respondents reported observing PPE submerged in bodies of water.

Intact PPE items are already proven entanglement and choking threats to marine wildlife including seabirds and crabs. Single-use or disposable PPE are predominantly made of plastic polymers and, like all plastics, persist in the environment indefinitely, never fully breaking down but rather breaking up into called microplastics microfibres.

Research published in the journal Environmental Advances earlier this month showed that a single disposable face mask can release up to 173,000 microfibres per day in a simulated marine environment. Prior to the pandemic, microfibres were already the most common form of microplastic pollution in our waterways and ocean.

"PPE like gloves and masks has been absolutely critical in keeping the public safe throughout the pandemic," said Nick Mallos, senior director of Ocean Conservancy's Trash Free Seas programme. "At the same time, there's no doubt that the resulting plastic pollution has taken a significant toll on the environment and that – like with many pollutants – the ocean is the first to bear the costs."

The report offers a number of recommendations for government bodies at the federal, state, and local levels, as well as for businesses and individuals, to reduce reliance on single-use plastics, help bolster struggling waste management systems here in the U.S., and address PPE pollution in particular.

These include implementing legislation like the Break Free From Plastic Pollution Act, which was reintroduced in Congress earlier this month, ensuring adequate disposal receptacles in places with high foot traffic (like grocery and other retail stores), and snipping the ear loops off face masks to lessen entanglement risk to animals as well as conducting solo or socially distanced cleanups in the community when possible. **SNW**

Dutch PPE Solutions starts meltblown production

Geleen - Dutch PPE Solutions, the joint venture of Royal DSM and VDL Groep, has begun the sustainable production of virus filtering material for FFP2 and IIR facemasks in a newly built factory in Geleen, the Netherlands.

Dutch PPE Solutions is the first to deliver professional facemasks with the critical filter layer made entirely on Dutch soil with the company hoping that the joint venture will make Europe less dependent on supplies from overseas.

The high-quality meltblown polypropylene fabric is made from bio-based feedstock - used cooking oil - and the manufacturing line runs on renewable electricity. Dutch PPE Solutions' ambition is to produce the most sustainable filter material for FFP2 and IIR facemasks.

The facility in Geleen was built in record-time. From idea, planning, construction, building and testing to large-scale

production took only months, three times faster than regular lead times. The first facemasks from Dutch PPE Solutions were delivered in January 2021, containing filter material from a non-Dutch supplier. Now, meltblown polypropylene filter material from Dutch PPE Solutions is also available to other customers in Europe.

DSM and VDL joined forces in September 2020 to meet the urgent need to diversify the global production and supply chains of personal protective equipment at scale by reducing dependency on a small number of international sources.

The companies invested several million euros in manufacturing equipment to produce facemasks and in the new manufacturing facility for meltblown polypropylene. The joint venture employs dozens of people in its production locations in Geleen and Helmond, the Netherlands.



Chemical treatments for Covid-19 protection

CARTERSVILLE - Piana Group's new Piana Protection technology enables any textile or porous surface to be protected with an antiviral and antibacterial treatment with fibres that are treated throughout and highly durable.

The Piana Group's solution relies upon advanced silver chemistry and patented Piana fibre treatment processes that ensure efficacy within minutes of contact. Independent laboratory tests have shown a 99.8% reduction in viral activity in the first 30 minutes and 99.995% viral reduction after one hour. Piana Protection fibre technology is currently specified for use in facemasks which are pending final approval by the U.S. Food and Drug Administration and will be available in the market in Spring 2021.

This new technology is said to be highly versatile and will soon be integrated into a host of other consumer products including pillows, mattress toppers, filtration and seating applications. The proprietary antiviral and antimicrobial solution is pending approval by the U.S. Environmental Protection Agency.

Cushioning articles treated with Piana Protection will feature patent pending V-Smart nonwoven fibre construction. V-Smart materials are lightweight, highly resilient, moldable and have extremely high airflow to help maintain a cool, dry environment.

The addition of Piana Protection antiviral and antimicrobial treatments will further elevate the numerous distinctive attributes of this adaptable foam replacement material.

Piana Group products are manufactured using patented, ecologically sound manufacturing processes and are 100% recyclable, minimizing and reusing waste.

Dutch IIR facemask manufacturer MedProtex is Dutch PPE Solutions' first customer of meltblown polypropylene. Cyrille Depondt, CEO MedProtex said: "To establish a sustainable, transparent and futureproof production chain of personal protection equipment, it is crucial to have access to raw materials close to home. The opening of the factory for highquality critical filter material in Geleen is a testimony to entrepreneurship and a proofpoint for making our Dutch and European infrastructure more resilient for future pandemics. At MedProtex we believe in short, sustainable chains and transparency. Dutch PPE Solutions delivers just that. That's why we decided to use their meltblown polypropylene filter material in our products. This powerful collaboration is Made in Holland and creates multiple value on economic, social and ecological level."

Pieter Wolters, Vice President DSM Innovation Business Building and Member of the Dutch PPE Solutions Board added: "The initial goal between DSM and VDL was to help when it was most needed and immediate actions were necessary in the fight against COVID-19. We learned during the early months of the pandemic what the risks are of full dependency of overseas suppliers and that a partial capacity of local manufacturing will provide better health and safety for the future. We promised we would do something about it and now we deliver. With the Geleen-based meltblown polypropylene production facility and the facemask production lines in Helmond we secured a Western European supply of facemasks and critical facemask components. Thereby we provide robust and reliable highquality personal protection equipment to the healthcare workers and the population."

Simple facemask solution to fogged glasses

FAIRBURN – A common problem for eyeglass wearers during the Covid-19 pandemic has been how to wear a facemask without lenses fogging up as a result of excessive moisture and humidity.

To solve this, Unity PPE, has introduced Seals – hypoallergenic foam inserts engineered to fit faces of all shapes and sizes, eliminate eyeglass fogging, and improve a facemask's overall comfort and protection.

Unity PPE partnered with Porex, the leader in porous polymers and part of The Filtration Group, to engineer the new foam solution.

Seals are easily inserted with double-sided tape along a facemask, which is then aligned to the centre of the nose bridge on the mask. Once inserted, wearers will find the mask more comfortable, and the foam absorbs sweat and humidity.

By redirecting air away from the eyes, Seals reduce or eliminate the fogging of eyewear, as well as the potential for dry eyes.

PPE's patent-pending Seals are composed of a soft, lightweight polyurethane foam from Porex that is exceptionally durable and reusable.



ReliaFlow for rapid test kit manufacturers

HELSINKI – The Covid-19 pandemic has clearly demonstrated the importance of efficient mass screening and rapid diagnosis in determining the status of the spread as well as in setting targeted response strategies for containing the outbreak.

During the pandemic various diagnostics methods have been utilized, and rapid tests have gained increasing interest.

Rapid antigen tests are ideal for decentralized testing and can deliver fast and actionable results, ensuring timely identification of people infected with the virus at the community level. They have become key for point-of-care Covid-19 testing due to faster test results (15 minutes), without the need for laboratory infrastructure or expensive equipment. Ahlstrom-Munksjö has been developing components for rapid test kits for decades and since the beginning of the pandemic, has been supporting diagnostics companies in their efforts to develop efficient Covid-19 screening devices with its ReliaFlow range of products. Specifically designed for use in flow-through and lateral flow assays, the ReliaFlow portfolio includes:

- Sample pads for blood, saliva and other liquid samples to meet the most demanding requirements.
- A conjugate release pads range from which manufacturers can choose the best solution for different applications, combining high performances and improved processability during manufacture of the kits.
- Absorbent pads which ensure proper flow

"The rapid spread of Covid-19 has inevitably led to an increase in the need for healthcare goods including diagnostics and screening tools," said Laia Guarro, VP of Liquid Technologies at Ahlstrom-Munksjö. "We are fully committed to supporting our in providing faster, more accessible and reliable tests"



Porex engineered the Seals hydrophilic foam with an antimicrobial component to improve protection. Its permeability creates a breathable seal and helps dissipate heat. Seals also offer a smooth texture that only a comfort foam can provide, preventing skin irritations and facial markings. Their hypoallergenic and latex-free composition eliminates chaffing and rashes, and the foam is non-crumbling and long-lasting.

PPE stockpile contract for Cardinal

DUBLIN, OHIO – Cardinal Health has been awarded a US\$57.8 million contract, including options that if exercised by the US Department of Health and Human Services (HHS) could reach \$91.6 million, for the storage and distribution of 80,000 pallets of personal protective equipment (PPE) to support the country's Strategic National Stockpile (SNS).

With its expansive distribution network, Cardinal Health can provide rapid deployment and delivery of SNS product throughout the US and its territories, as directed by the government, to assist with critical PPE needs in response to the Covid-19 pandemic, as well as other national or localised public health emergencies.

PPE product within the SNS, to be stored across US Cardinal Health medical facilities, includes inventory from multiple manufacturers and vendors to be provided to multiple institutions.

"Cardinal Health is uniquely positioned to get critical products to healthcare providers and first responders as effectively, safely, and swiftly as possible in response to the Covid-19 pandemic," Unity PPE, a women-owned and operated business based in Nashville, Tennessee, specialises in facemasks, shields and other PPE products. CEO and co-founder Savannah Cleveland came up with the idea for Seals along with her uncle.

"We looked at different foam suppliers, but Porex offered a superior foam that's the softest on the market for skin contact," Cleveland said. "Their engineers collaborated with us to perfect our design and bring our product vision to life."

Porex is also able to provide die cuts for its products, which enabled Unity PPE to make Seals inserts fully customisable depending on the shape of an individual's face.

"Porex hydrophilic polyurethane foam is an ideal solution to enhance PPE by enhancing comfort, compliance and protection – whether for facemasks, eyewear, face shields or other PPE products," said Will Raybon, Porex strategic marketing manager.

As part of its commitment to community safety, Unity PPE is currently offering a campaign to recognise US frontline workers on its website. With the purchase of a Seals product, a second will be donated to a healthcare worker of the buyer's choice.



said Steve Mason, CEO of the company's medical segment. "We are proud to help the country by providing this critical pandemic support in partnership with the US government."

Cardinal Health is a distributor of pharmaceuticals, a global manufacturer and distributor of medical and laboratory products, and a provider of performance and data solutions for healthcare facilities. With operations in more than 40 countries, it has approximately 48,000 employees globally.

Revolution renamed NanoLayr after expansion

AUCKLAND – Following a large-scale expansion carried out over the past year, nanofibre manufacturer Revolution Fibres has now renamed itself NanoLayr. The New Zealand company, founded in 2009, has moved into a new 5,50-square-metre facility in Auckland equipped with five of its customised sonic electrospinning machines.

"An increasing number of industries are embracing what nanofibres can do to make products better and stronger, to maximise performance, and establish competitive advantage," said CEO Ray Connor. "We have been a pioneer of advanced nanofibre technology using our proprietary sonic electrospinning process to manufacture nanofibre products, including filter media for N95 and N99 face masks and the collagen skincare product ActivLayr. Our focus is to maximise the potential of our platform technology."

The company's expansion has been in response to global demand for nanofibre solutions across a wide range of sectors, including filter media, skincare, and sound insulation for the construction and furniture industries.

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NIRI installs new meltblown technology

New investment in flexible and adaptable technology will enable the research institute to develop a wide range of innovative nonwoven structures.

he Leeds, UK-based Nonwoven Innovation & Research Institute (NIRI) has recently completed an upgrade to its existing meltblown system, installing new equipment and expanding its extensive facilities to further help clients across a whole host of applications.

The latest meltblown system will be of particular relevance for research and development, pilot projects, sampling and prototyping, proof of concept testing, as well as designing cost-effective products.

The availability of meltblown technology has been high on the nonwoven agenda over the last year given its critical usage in medical grade textiles throughout the COVID-19 pandemic, including Type II and Type IIR face masks, FFP2, FFP3 and N95 respirators, and PPE more generally.

NIRI's upgraded laboratory and pilot system from Fibre Extrusion Technology (FET) is capable of processing a wide range of polymer types often involving difficult-to-process materials, including standard polymers; engineering polymers; high temperature polymers; corrosive and aggressive polymers, as well as sustainable and biomedical polymers.

"We were mindful when specifying the new equipment that we wanted to invest in the most flexible and adaptable technology available, to enable the development of a wide range of nonwoven structures - with the potential to develop unique filament and mechanical properties to further facilitate our clients' R&D and prototyping," Dr Matthew Tipper, CEO at NIRI explained.

Cutting edge

NIRI's new meltblown equipment includes a cutting-edge computerised control system for monitoring and managing all parameters, including temperature, pressure, speed and recipes. The software associated with the control system features quality verification for the entire process, as well as highly flexible reports and a combined display of data, alarms and events to trace cause and effect, offering the greatest range of options for R&D and prototyping.

Found across numerous sectors, the applications of meltblown technology are varied, from use within the specialist biomedical field for the manufacturing of medical devices, tissue support and surgical meshes, to use within the



healthcare field for sanitary products, including feminine hygiene products and adult incontinence aids. Filtration applications (both liquid and gaseous) include clean room filters, industrial respirators and automotive cabin filters.

The thermal insulation properties of meltblown nonwovens make them particularly suitable for both general and functional fabrics within apparel, including disposable industrial apparel. Meltblown technology is also utilised within oil sorbents, to collect oil from the water surface during incidents including accidental oil spills.

Dr Ross Ward, NIRI's new business development manager, added: "In response to the COVID-19 pandemic, at NIRI we've been using our expertise and extensive facilities for the continued development of PPE and medical devices. This is, clearly, an area where our new equipment will benefit clients and, ultimately, the general public. We are keenly interested in exploring the wider opportunities for meltblown nonwovens, such as developing products from bio-derived polymers, chemically recycled polymers and novel masterbatches with enhanced functionality. This latest investment will help us facilitate the rapid development of innovative and commercially viable products for our customers." SNW





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Sustainable wipes from Coterie

NEW YORK - Baby care brand Coterie has launched a new wipe made made from 100% plant-based biodegradable and compostable materials.

Designed in partnership with Lenzing's Veocel brand, the Coterie Wipes, consisting of 99% water, are said to be the most sustainable and the largest (up to 30% bigger) baby wipes on the US market.

Following recent certification testing, they proved to be fully compostable after just a few weeks vs. hundreds of years and decompose even under the toughest of conditions. By comparison, the acceptable standard for compostable products can take up to six months, and plastic-based products, like most competitive wipes, can take hundreds of years, the company said.

Additionally, the wipes are the first-ever across the nation to be certified by the Environmental Working Group (EWG) for chemical safety, the National Eczema Association for gentleness, and TÜV-OK Compost HOME for sustainability.

"We're on a mission to revitalize the babycare space while setting new industry standards for performance and sustainability," said Frank Yu, Founder, and CEO of Coterie. "Our partnership with Veocel is a testament to our continued investment and dedication to sustainable innovation, and we're proud to have designed another high-performing product that



provides the perfect combination of effective cleaning, enhanced skin health, and efficiency for the environment."

The Veocel Lyocell fibers are a natural and renewable raw material sourced from sustainably managed forests with FSC certification. They are manufactured using a patented closed-loop production process combined with a low environmental impact.

Veocel fibres have been certified as biodegradable and compostable under industrial, home, soil, freshwater and marine conditions.



Neenah Filtration launches NeenahPure

FELDKIRCHEN - Neenah Filtration has launched NeenahPure, – a HVAC filter media solution for clean air. HVAC and Air Purifier filters play a key role in providing clean indoor air with a high-quality filter media essential for the effectiveness of a filter element.

Neenah Filtration filter media portfolio NeenahPure covers efficiencies from ePM10 50% to ePM1 80% (ISO 16890) and M5-F9 (EN779:2012). The highly charged materials reach efficiencies > 99.9% (KCL, 0,3µm, 5.3cm/s). NeenahPure filter media are available for pleatable and bag filter elements. As well as the standard portfolio, the company also provides tailor-made solutions to satisfy individual requirements in regards to performance and runability. Neenah offers high precision slitting according to its customers' specifications (combination of different widths, narrow widths etc.), online inspection systems, high flexibility in the composition of media, and different bonding technologies. NeenahPure media also avoids harmful fiber sheddings, has a very high dust holding capacity (DHC), a good pressure loss and efficiency ratio, a very high mechanical stability, and flame retardancy.



Freudenberg shoe components certified to GRS

WEINHEIM - Freudenberg Performance Materials has completed the Global Recycled Standard (GRS) certification process for its shoe components manufactured in Asia.

With all Freudenberg Far Eastern Spunweb sites certified by Control Union Certifications, the company is now an officially confirmed supplier of sustainable shoe components. These include strobel insoles made of 100% recycled polyester. These insoles are lightweight and binder-free, and there is low waste from cutting.

The GRS certification recognizes the share of recycled materials in Freudenberg Far Eastern Spunweb s eyelet reinforcements and lightweight strobels. This attestation enables the supplier to support its customers in calculating the total amount of recycled material in their shoes and in creating sustainable solutions. Freudenberg s GRS-certified materials are widely used by leading global sport brands, especially in running and lifestyle shoes, to support functional strength. Freudenberg Far Eastern Spunweb has been using recycled raw materials in its products since it was established in 1987. The manufacturer is one of the very few technical textile suppliers in the market to recycle polyester waste from its own production processes as pre-consumer recycled polyester, thus ensuring correct recycling records and material quality. Today, all of its materials are made from postconsumer and pre-consumer recycled polyester.

Freudenberg Far Eastern Spunweb currently offers certified eyelet reinforcements and strobel insoles made from 100% recycled polyester and 87% recycled and 13% conventional polyester. The company plans to exclusively produce materials made from 100% recycled raw materials by 2023. Freudenberg mainly markets the GRS-certified shoe components in South East Asia, but Freudenberg's global organization enables all customers worldwide to purchase these materials, regardless of the country in which they produce.

Henkel partners with Smartz for adult care solutions

DÜSSELDORF – Henkel has signed a joint marketing and development agreement with Smartz AG under which they will offer hygiene product manufacturers market-ready digital health products, enabled by printed electronics.

The partnership brings together conductive inks from Henkel s printed electronics portfolio with Smartz' existing adult care Internet of Things (IoT) hardware and software solutions.

Together, both companies will be able to create smart hygiene products that can sense when a wearer needs to be changed or moved, supporting and unburdening medical personnel.

With an ageing population and increasing demands for adult care, Henkel says that such solutions provide an effective way to offer improved performance that simplifies the tasks of caregivers. At the same time, it provides dependent people with a less intrusive service and further protection.

Developed alongside Smartz, this new development is said to provide manufacturers of hygiene products with smart capabilities that can be integrated into existing product designs and produced on a large scale. Through the partnership agreement, the companies will also jointly develop future generations of smart care products and new applications relating to digital health.

By offering a full smart adult care solution, conventional incontinence products, such as adult diapers, can be transformed into smart, connected hygiene products. Smartz' special pod sensor design is a clip-on, reusable device that works in tandem with a sensing interface, which can be integrated within a layer of the diaper. Using conductive inks from Henkel, the sensing material can be printed into the material for the incontinence product at the time of manufacture. This marketready material is noninvasive, fully safe for skin contact and allows the sensors to communicate wirelessly with a caregiver s software dashboard.

Manufacturers can integrate this added functionality to conventional hygiene products



within the existing manufacturing infrastructure. It is also said to help healthcare or care providers to quickly realize cost savings by avoiding unnecessary checking and product changes. This also helps to avoid additional inconvenience or even distress that individuals may experience when action is taken needlessly or when it is delayed.

This is especially true for patients unable to communicate their needs. Timely changes and regular repositioning support the prevention of dermatitis, bed sore and urinary tract infections, which are often associated with incontinence patients. The wearers' status is sent wirelessly to the Smartz app, where it can be monitored via a dashboard of health and wellness metrics or passed to existing monitoring and call systems to keep all relevant information in one place. All data is securely encrypted to comply with relevant privacy legislation.

"We believe in the power of data in the context of

medicine. At Smartz, we have a decade of experience in building a robust, yet flexible platform to fully realize this vision," said Michael Spooner, CEO Smartz. "With Henkel we have found a partner that complements our technology with the target market experience and network, as well as outstanding printed electronics expertise."

By creating an integrated platform, Henkel and Smartz say they are also providing manufacturers of hygiene products with a scalable solution that can be customized to suit the branding and user requirements of their customers. The first commercial product targets the adult care market, with features including moisture sensing, patient position, environment temperature, and fall detection. The software also allows for individual goal setting per patient, such as alarms for caregivers to reposition to help prevent bed sores and additional incontinence related side effects.

Ingeo partners on compostable coffee pod

BOLOGNA/MINNETONKA – NatureWorks, the manufacturer of low-carbon Ingeo PLA biopolymers, and processing and packaging specialist IMA Coffee, have entered into a joint strategic partnership aimed at accelerating the market for high performing K-Cup compatible compostable single-serve coffee pods in North America.

The multi-year partnership brings together NatureWorks' expertise in compostable materials, formulations, and processing technology with IMA's competencies and application-specific knowhow encompassing all stages of coffee handling, processing, and packaging.

The pressure on the single serve coffee market to make more meaningful progress towards a more sustainable packaging solution has



grown significantly in recent years. Consumers appreciate single-serve capsules for the convenient and quality brewing experience but see the packaging waste associated with a capsule as a detriment. Compostable capsules create the opportunity to not only address consumer concerns and divert the packaging away from landfills, but, perhaps more importantly, to recover the used coffee grounds, enabling their processing at a compost facility where they deliver valuable nutrients to the final compost.

Coffee capsules are complex structures where the **)**

New PHA resins available from TerraVerdae

EDMONTON – TerraVerdae Bioworks has introduced new PHA-based resins for evaluation by customers in the personal care, agri-food, packaging, forestry, coatings, adhesives and associated markets.

The new resin formulations are available in three versions – for blown/cast films, injection moulding and thermoforming.

The launch of these products is described as a milestone in TerraVerdae's extensive drive to produce plastic resins that are not just biobased and

biodegradable, but also have the requisite performance properties allowing customers to meet evolving material needs and sustainability goals. "TerraVerdae is garnering global interest in its PHA biopolymer technology as jurisdictions and industries around the world actively work to reduce the impact of plastic waste," said William Bardosh, president and CEO of TerraVerdae Bioworks. "From oceans of plastics to unrecycled heaps of plastic waste and overflowing landfills, TerraVerdae's technology offers a sustainable path for product manufacturers to develop high-performing yet compostable bioplastic material that will reduce the build-up of petroleum-based plastic trash in the environment."

PHA polymers are biobased, biodegradable, biocompatible and can be processed as thermoplastics into a wide range of end products. Established in 2009, TerraVerdae operates product development and pilot-scale production facilities in Canada in Edmonton, Alberta, and Charlot-tetown, Prine Edward Island.





Organic benefits of algae

PETAH TIKVA – Spunmelt nonwovens producer Avgol is collaborating with Algaeing, the Berlin-based developer of patented algae biobased formulations for colorants and fibres.

The focus is on modifying the aesthetic qualities of sustainable polyolefin based spunbond and meltblown fabrics.

Algaeing's technologies utilise various algae species to produce a wide range of appealing colours, many of which replicate those used in nonwoven fabrics today. The benefits of using an algae bio-source go far beyond the removal of chemically synthesized colorants, and include vastly reduced water consumption, chemical/fertilizer use, and carbon dioxide emissions.

"We're very excited to bring our technology into the realm of spunlaid nonwovens," said Renana Krebs, CEO of Algaeing. "The opportunities to utilise our technology in Avgol's sustainable component materials and bring colour, as well as the skin wellness attributes of algaederived products into personal care items is an opportunity to reduce human impact around the world on a large scale."

"Avgol is building a portfolio of products and materials to offer 100% sustainable end-products for hygiene, medical, PPE and industrial applications," added Shachar Rachim, CEO of Avgol. "Our recent announcement of the collaboration with Polymateria and the Biotransformation technology for fugitive single use articles fills out one part of the overall catalogue. Creating a link with other companies which have a drive towards the future and round out our offering is critical for supporting our vision. We found that exact motivation in Algaeing."

The companies have been working together since 2020 and have tested the Algaeing colorant technology in proof of concept and prototyping phases. The parties are now preparing to enter the next stages of the product introduction pipeline.

The application of the integrated colour to nonwovens will initially concentrate on the hygiene and medical/personal protection equipment markets. Specifically, body liner materials for absorbent hygiene products (AHP's) and face mask/face covering components will be key targets in the first-generation product launch.

"The benefits of Algaeing's technology also fit well with Avgol's desire for materials that are more readily recyclable and biodegradable," said Rachim. "Having an organic colorant that can be removed during the recycling process and has no negative impact when released into the environment if undergoing biodegradation, supports polyolefins as future-proof resins." capsule body, lidding, and filter must be precisely designed to deliver a consistently high-quality brewing experience. Before the capsules even reach consumers, it's critical that these components perform well during assembly and filling as well as on the shelf and during brewing. By bringing together NatureWorks' materials and applications knowledge with IMA's machinery expertise, the partnership aims to deliver a turn-key compostable coffee pod solution to the entire coffee industry making it simple to have a great cup of coffee and dispose of the used pod in the most sustainable way possible.

seen tremendous interest in compostable single-serve pods," says Flavio Di Marcotullio, Global Industry Manager for NatureWorks. "Brandowners and roasters are responding to both consumer demands for more sustainable packaging and to circular economy directives that specify compostable packaging as a key enabler of recovering food waste for compost. To continue supporting this growth, we saw the opportunity to partner with IMA as they have long helped the singleserve coffee market implement innovative new packaging technologies and have a long-term commitment towards sustainable solutions."

"At NatureWorks, we've

Jacob Holm introduces new Sontara EC Green

BASEL - Nonwovens manufacturer Jacob Holm has introduced a new sustainable option to its range of industrial wipes.

Sontara EC Green is described as a unique, high performance 100% cellulosic substrate product, made from proprietary Sontara technology. This ultra-pure production process creates a 100% bio-based product without any binders, chemicals or silicone, the company says.

"Sontara EC Green is patent-protected and produced from renewable sources, making it an excellent alternative to nonbiodegradable substrates," said Jacob Holm. "Food contact safe, wipes come in a convenient dispenser box with sealed packs to prevent any contamination. With this product, you can have the critical cleaning power you need while being environmentally responsible."

Along with new sustainable packaging made from recycled materials and a new folded wipes format, Jacob Holm is adding this sustainable option to its wider Sontara EC product range and is available to fabric customers in EMEA from this month.



Precision Textiles biodegradable fabric for medical gowns

TOTOWA - Precision Textiles, a supplier of coated fabrics, nonwovens and laminations for the bedding, automotive and healthcare industries, is expanding its commitment to the development of more sustainable products with its newly launched EcoGuard material.

The domestically produced, eco-friendly fabric was developed for use in personal protective equipment (PPE), specifically disposable medical isolation gowns. This material contains an additive that helps it biodegrade up to 99% faster than typical polypropylene gown material.

"EcoGuard adheres to our corporate mission to manufacture products that pose low environmental risk," said Scott Tesser, president of Precision Textiles. "Isolation gowns produced with polypropylene materials can take over 600 years to biodegrade in a landfill, leading to the emission of carbon dioxide and other greenhouse gases. The additive in our EcoGuard material accelerates the biodegradation process to approximately six years, reducing the CO₂ footprint that is harmful to the environment.

"Cost-wise, gowns made with EcoGuard make a great deal of sense. Not only are they better for the planet, but they are also in the same price range as the polypropylene gowns we make in our manufacturing facility."

The additive in the

EcoGuard material releases enzymes that allow the gowns to serve as food for microbes to consume, thus dramatically speeding up the biodegradation process. These gowns are easy to dispose of, the company says, and recycle after use, which further helps the environment by reducing the waste mass in landfills.

Tesser added: "I am surprised that no one has been talking about the issue of polypropylene in PPE, especially at a time when COVID-19 has created a tremendous need for PPE for those on the front line providing medical care. These gowns are disposable, so they go right into landfills, making their biodegradation an important issue, especially since eco-consciousness among consumers continues to be on the rise."

Medical isolation gowns certified by AAMI are classified at four levels depending on the medical applications in which they are used. Gowns manufactured with EcoGuard are appropriate for applications ranging from AAMI Level 1 basic care to Level 4 high-risk situations.

According to ADTCC-ASTM guidelines, these gowns must pass tests for resistance to liquid penetration on impact from sprays and for liquid penetration on impact under constant and increasing hydrostatic pressure.

Made in the USA, EcoGuard medical gowns also comply with the Berry Amendment, which restricts the U.S. Department of Defense from using funds to procure clothing, fabrics, yarns, fibers, other textiles and food that is not grown, produced, reprocessed or reused in the United States.

Nonwovens offer improvement in composite abrasion resistance

Burneside - Technical Fibre Products has released details of a new study which confirms that the use of its aramid nonwovens in composite surfacing applications demonstrates their effectiveness in protecting the underlying structural elements of a composite from the effects of abrasion or wear.



According to TFP, the lightweight aramid veils enable a high quality surface finish, whilst simultaneously providing a durable and sacrificial layer in applications such as high speed composite rollers, automotive friction substrates or sporting goods where the composite experiences a constant friction. This continuous wear can potentially have a detrimental impact on the performance of the composite, as well as significantly reducing the product's lifespan. The study carried out examines the effectiveness of using a surfacing veil to increase wear resistance by comparing composite panels fabricated both with and without TFP's aramid veils.

The panels (based on epoxy resin and woven carbon) were tested using a pin-on-disk tribometer to measure friction and wear as a function of time. The data generated demonstrates that the measured coefficient of friction is significantly lower when an aramid surfacing veil is used, taking at least 5 times as long to reach the level measured in the control.

Essentially, this indicates that the level of friction experienced by the composite surface is significantly lower and less material is worn away as a result. This finding is reinforced by microscope imaging of the samples showing just damage (and no breakage) to the surface fibres and no damage to or exposure of the woven reinforcement in the composite panels containing aramid surface veil. This can be compared to evidence of significant fibre breakage and damage to the underlying carbon weave in the control panel.

The findings, said TFP, demonstrate the importance of the aramid veil in acting as a sacrificial layer to protect the underlying reinforcement, ultimately increasing durability of the composite structure and extending its lifespan.

Groz-Beckert offers hybrid experience at ITMA Asia

Albstadt - Nonwovens systems supplier Groz Beckert offer ed both an in-person and a virtual service to visitors at this month's ITMA Asia + CITME exhibition.

The 7th edition of the show took place from 12–16 June 2021 in Shanghai, China with Groz-Beckert presenting the new products from all six of its key product areas.

The products were presented both physically as exhibits and in extended form via augmented reality in Hall 4, Booth C31. However, with travel restrictions still in place in some parts of the world, the company also invited all visitors who could not travel to the trade fair the opportunity to visit its virtual booth.

The three-dimensional virtual space was designed to match the original booth with the Albstadt, Germany, based firm developing a digital service specifically for the trade fair. Visitors could move through the virtual space alone or together with a Groz-Beckert employee and view all exhibits in 3D. Both the physical and virtual booth featured the same products with the Nonwovens product area presenting several product innovations.

The patented Gebecon felting needle was one of the highlights of the Felting product area, and could be viewed in detail thanks to augmented reality. It offers an improved surface

Lenzing adds Veocel to established E-Branding service

LENZING - Cellulosic fibre specialist Lenzing is rolling out its existing E-Branding service to its Veocel brand of fibres, a move aimed at elevating supply chain transparency for its nonwovens business. The online licensing platform will provide the Veocel brand's expanding network of partners with a platform designed to increase the value of products by showcasing the use of sustainable, high-quality and ethically sourced materials.

As well as making the Veocel certification process more straightforward, the Lenzing E-Branding Service will also allow producers, retailers and brand owners from hygiene, beauty and home care products to certify their use of Veocel branded fibres and develop co-branding campaigns that improve the value of their products.

First launched in 2018 for the textile industry, the E-Branding unifies registration, application and approval in an online system designed to eliminate the use of paper and reduce response times, with the aim of enhancing efficiency by digitizing workflow.

As a digital hub for Veocel brand partners, the platform includes features to apply for new licenses, monitor application status and manage existing licenses. Simultaneously, the platform will act as a support portal, showcasing the latest branding guidelines and support for Veocel brand certified products. quality and optimized bending resistance. Know-how protection and improved needle logistics were just two of the numerous advantages of the customer product that the area highlighted for customers at the booth.

Visitors to the Tufting product area, meanwhile, discovered the measurable advantages achieved during the production of tufted floor coverings using the Groz-Beckert Tufting Gauge Part Systems.

A coordinated combination of materials and the functional interaction of all tools ensure the quality and economic results of the tufting process.

Founded in 1852, the family-owned company now employs around 9,000 people and generated a turnover of 618 million in 2020. Groz-Beckert currently operates with agencies, production and distribution subsidiaries in more than 150 countries around the world.

Advanced filtration at Jaguar Land Rover

WHITLEY – Jaguar Land Rover's has developed a cabin air purification system that has been shown in laboratory tests to inhibit viruses and airborne bacteria by as much as 97%.

The prototype heating, ventilation, and air conditioning (HVAC) system uses Panasonic's nanoe X technology to inhibit harmful bacteria and viruses and protect the cabins of future Jaguar and Land Rover models.

To provide active air purification the nanoe X technology – said to be ten times more effective than its predecessor, nanoe – uses a high voltage to create trillions of hydroxyl (OH) Radicals enveloped in nano-sized water molecules. These OH Radicals denature the virus and bacteria proteins, helping inhibit their growth.

The OH Radicals deodorise and inhibit allergens in a similar way to create a cleaner air environment for customers. nanoe X particles are much smaller than steam and can deeply penetrate nonwoven fabrics.

Jaguar Land Rover partnered with Perfectus Biomed, a leading microbiology and virology lab, to perform the worldleading laboratory-based sealed-chamber test designed to simulate a vehicle ventilation system in recirculation mode over a 30-minute cycle.

The independent research showed that viruses and bacteria were inhibited by as much as 97%.

Panasonic's nano X technology has also been tested on coronavirus (SARS-CoV-2*) by Texcell, a global research organisation that specialises in viral testing and immunoprofiling, and is one of the few laboratories in the world with permission to test against novel coronavirus.

It found more than 99.995% of the virus was inhibited during the two-hour laboratory test.

"Hydroxyl Radicals are one of the most important natural oxidants in chemistry and have been helping to clean our atmosphere for millennia, removing pollutants and other harmful substances. The creation of this technology and our

NONWOVENS NEWS

advanced research is the first step in deploying this scientific phenomenon within vehicle cabins of the future," said Dr Steve Iley, Jaguar Land Rover's chief medical officer.

Models including the new all-electric Jaguar I-PACE performance SUV, Land Rover Discovery and Range Rover Evoque currently offer nanoe technology and PM2.5 filtration.

Circular plastics fund to drive recycling innovation

NEW YORK - Dow, LyondellBasell and NOVA Chemicals have announced the establishment of the Closed Loop Circular Plastics Fund which will invest in scalable recycling technologies, equipment upgrades and infrastructure solutions.

The Fund, managed by Closed Loop Partners, and with an initial US\$25 million investment, invites businesses across the plastics value chain to join in advancing the recovery and recycling of plastics in the U.S. and Canada.

The goal of the catalytic fund is to grow to deploy \$100

Dilo showcases latest technology at ITMA Asia + CITME

EBERBACH - Nonwovens machinery manufacturer Dilo exhibited a range of its latest nonwovens technology at the recent ITMA Asia + CITME. As a major supplier to the industry, DiloSystems provides production lines for a wide range of nonwovens manufacturing processes using numerous staple fibre products.

DiloGroup, with DiloSpinnbau, DiloTemafa, DiloMachines and DiloSystems as the general contractor, offers a complete range of the machinery required to produce needled nonwovens and, together with partners, thermobonded and hydroentangled nonwovens for a range million, through a combination of the Fund's founding investors, additional corporate investors and financial institutions, in order to attract additional capital beyond the Fund's own commitments. At scale, the Fund's investments aim to recycle over 500 million pounds of plastic over the Fund's lifespan.

The Closed Loop Circular Plastics Fund will invest in three strategic areas to increase the amount of recycled plastic available to meet the growing demand for high-quality, recycled content in products and packaging:

• Access – Increasing the collection of targeted polyethylene (PE) and polypropylene (PP) plastics by advancing current and next-generation material collection systems, including transportation, logistics and recycling sortation technologies and infrastructure.

• Optimization – Upgrading recycling systems to more efficiently aggregate, classify and sort the targeted plastics to increase the total amount of high-quality plastic, including food-grade and medical-grade plastic, sent for remanufacturing.

• Manufacturing – Investing in facilities and equipment that manufacture finished products, packaging or related goods using recycled content, including recycled PE and PP.



of applications including geotextiles, housing and roofing, automotive products, filtration, acoustics, artificial leather and medical or hygiene products. "Looking back on a difficult year 2020, positive developments and a recovery in many industry sectors are now underway," said Dilo. "DiloGroup lines can be supplied turnkey from the general contractor DiloSystems as a partner for a coordinated, professionally managed investment with a single responsibility to fulfill all needs technically and commercially. The complete staple fibre process equipment, starting at fibre preparation (DiloTemafa), continuing with webforming by carding (DiloSpinnbau), up to crosslapping and needling (DiloMachines) is built in-house by Dilo's highly specialized departments. These complete line projects are developed in close contact with our customers and on the basis of textile technological research and studies carried out in our technical centre in Eberbach, Germany."

Dilo also recently added water entanglement lines to its portfolio, a result of its cooperation with SICAM S.r.l., a well-known producer of high quality machinery for the nonwovens industry. As well as these latest spunlace lines, DiloGroup is also able to fulfill demands and requirements for products requiring improved tensile strength ratios with Dilo high-speed carding and layering technology.

Other technologies available include the DI-LOUR, DI-LOOP and Hyperpunch-needling systems which have created new markets for the nonwovens industry and pushed needlepunch technology to be one of the most important and versatile entanglement processes. These new approaches from Dilo have been designed to ensure higher productivity and quality for the nonwovens sector.

Elsewhere, diloline 4.0 smart manufacturing is now available for use on every line. This system allows numerous information modules to be recalled via mobile apps and cloud data (mindSpheres), which allow the user to improve control of the machines and to generate production data to further secure the complex functions within the production system independently of personnel and shift. A key benefit here is that standstill times are decreased. Dilo also offers 3D-Lofter technology which effectively works like a 3D printer. With the 'ink' consisting of fibres, the addition of adjustable amounts in a specific pattern on top of fibre mats or needled felts produces decorative features, precise reinforcement or improved fibre mat quality. Nearly all fibres including PES, carbon or natural fibres can be used with this system.



Robert van de Kerkhof has been elected as the new president of Brussels-based **CIRFS** – the European Manmade Fibres Association



- succeeding Necat Altin, general manager of Korteks and head of Zorlu Holding Textiles Group,

"I am very pleased that Robert van de Kerkhof has been unanimously elected to follow me as CIRFS president," said Altin. "He has been actively involved in CIRFS work for many years, on the board and more recently as its vice-president. He has a long and very successful record in the man-made fibres industry and is currently chief commercial officer for the Lenzing Group."

"Necat Altin has strongly supported the association in his period as president, showing how CIRFS can play a key role for the industry by adapting to a constantly changing and very competitive environment," added van de Kerkhof. "I look forward to continuing this mission over the next three years. The man-made fibres industry, in Europe and globally, is faced with many challenges such as international trade tensions and now the Covid-19 crisis. Our European industry, however, has numerous strengths. Not only is it the most innovative and the most sustainable worldwide, but it also manufactures highly specialised, quality and green products, which provide the base for a bright sustainable future. CIRFS will continue to actively work to help the industry build on these strengths."

CIRFS is the association for Europe's 10.5 billion man-made fibres industry, representing the industry to the European authorities and providing it with a wide range of services. Its members cover more than 70% of European man-made fibres output.

PFNonwovens has named Peter Jirasek as new chief financial officer. Jirasek has 23 years of finance experience in production and distribution companies. During his career, he worked in regional, divisional, and global CFO positions across several continents. In his last role at Delphi Technologies, he was responsible for managing revenues of over US\$3 billion, 18 production sites, and 18,000 employees.

Welcoming the appointment, Cedric Ballay CEO, PFNonwovens, said: "Peter's experience and knowledge will provide PFN with the strategic financial leadership it requires during the company's period of growth. Our customers want us to invest in our production capacities and deliver innovative products to them. Financial leadership plays a crucial part in delivering this to our customers. Peter is an impressive international manager with a Czech background, and I am convinced that his drive and focus will contribute to PFNonwoven's success."

Current Chief Financial Officer Marian Rašík is leaving the company after 12 years.

Hygiene and health company **Essity** has announced that Sahil Tesfu will join Essity's Executive Management Team in

the newly created position senior vice president Group Function Strategy & Business Development.

Sahil Tesfu

Sahil Tesfu joins Essity from the management consulting firm McKinsey & Company. She brings significant experience and knowledge in growth strategies and digitalization. In her role as Essity SVP Group Function Strategy and Business Development, Sahil Tesfu will be responsible for leading the work with the Group's strategy.

Sahil Tesfu joins Essity on September 1st and will report to Magnus Groth, President and CEO, Essity.

"I'm very pleased to welcome Sahil Tesfu to Essity. Her expertise and experience make her ideal to head up our strategy and business development work", says Magnus Groth, President and CEO, Essity.

Leigh Fibers has promoted Adam T. Watson to director of Sales and Sustainability. He has 10 years of experience in the recycling and sustainability industry. He oversees the development, evaluation, and implementation of sustainable solutions focusing on strengthening Leigh's core businesses. Watson is responsible for leading the sales and material design teams in creating new engineered recycled fibre solutions and enhancing client sustainability thinking practices.

Kimberly-Clark has announced a number of executive leadership changes in support of its global business strategy.

Russ Torres, president of Kimberly-Clark Professional (KCP), has been named group president of Kimberly-Clark North America. In his new role, Torres will lead Kimberly-Clark's North American consumer business, maker of many of the industry's most iconic brands, including Huggies, Kleenex, Cottonelle, and Depend. Torres will succeed Kim Underhill who is departing after 33 years with the company.

A successor to Torres at Kimberly-Clark Professional will be named in the near future. Torres will continue to report to Mike Hsu, Kimberly-Clark chairman and CEO.

"We're proud to have a deep bench of talented leaders to drive our global business," says Hsu. "Russ is a decisive leader with deep industry experience and a strong set of capabilities. His ability to rally teams around a common vision will drive results for our largest business unit."

Torres joined Kimberly-Clark in 2020 with more than 20 years of deep experience within the consumer products goods industry, spanning a number of key senior leadership roles at Bain & Company, Mondelez International/Kraft Foods, and Newell Brands. Torres holds an MBA from Northwestern University, and a bachelor's degree from Dartmouth College.

Kim Underhill, who rose through the ranks of Kimberly-Clark, began her career in 1988 as a process engineer and led several of the company's most strategic businesses, including the UK, Western Europe, Kimberly-Clark Professional, and the North American consumer business.

"Kim is an outstanding leader who embodied the Kimberly-Clark culture. Her career was built on trust, teamwork, and a drive for results," added Hsu, "The care she exhibited for our consumers, community, and our people will be long admired, and we are grateful for the example she set for the past 33 years."

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academy.php

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

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INDA Intermediate Nonwovens Training Course INDA Headquarters and The Nonwovens Institute Cary, NC Web: www.inda.org/events/calendar.php

August 2021

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

September 2021

14 EDANA Nonwovens Introduction Course Learn or refresh your basics in nonwovens with this online course Online Web: www.edana.org/trainings/trainings-calendar

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

October 2021

17 - 8 October EDANA online intermediate course Everything you need to know about nonwovens Online

Web: www.edana.org/trainings/trainings-calendar

19-22 INDEX

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21

INDA Absorbent Hygiene Training Course INDA Headquarters Cary, NC

Web: www.inda.org/events/calendar.php

28 - 30 RISE 2021 Virtual INDA's RISE Conference Web: https://www.riseconf.net

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.



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- What is the single-use filtration industry doing to improve its environmental footprint?
 Moderator: Philip Whitaker, CEO, BFC Solutions
- Are filter standards a friend or foe? Moderator: Tom Justice, President, Zene, LLC
- How can filtration/separation help ensure adequate clean water supply in a changing climate? Moderator: Mark Siebert, General Manager, Healthcare & Specialties, US & Canada, Berry Global, Inc.

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