

# fibers and filaments

the experts' magazine

october 2021

nonwoven  
special

## Nonwovens - a versatile material for a diverse market

page 4

## Concentration of competences

page 14



## imprint

'fibers and filaments' is the exclusive Oerlikon Manmade Fibers Solutions customer magazine. It is published two times per year by

### Oerlikon Textile GmbH & Co. KG

Leverkuser Straße 65, 42897 Remscheid, Germany  
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### Total circulation

800 copies

### Editorial staff

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### Print

Köllen Druck + Verlag, Bonn  
 www.koellen.de

### Photography

Ralf Buchholz, Rickey Steele, archive,  
 Innovatec, NOWOtex, RadiciGroup  
 Teknoweb Materials s.r.l.  
 iStockphoto.com/energyy  
 iStockphoto.com/simarik,  
 iStockphoto.com/EXTREME-PHOTOGRAPHER,  
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### Electronic Version (PDF)



# fibers and filaments

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## Dear Customers, dear Readers,

We are your reliable partner in the nonwovens industry. So, what can you expect from us? For instance, that we are always there for you – even when things are difficult or time is of the essence. When, during the initial phase of the pandemic, we were bombarded with orders for meltblown systems for producing face mask nonwovens, we swiftly reorganized our processes and dramatically shortened delivery times. Furthermore, a great partner is able to support its clients precisely where they need the additional know-how for their technological advancement or their business success. The fact that we offer this added value is demonstrated by our diverse development partnerships.

The performance and the support that we are able to provide is practically part of our DNA. Here, the business line Nonwoven of the Oerlikon Group – comprising both the Oerlikon Nonwoven and Teknoweb Materials units – operates independently and extremely flexibly within the market, but with a major concern behind it. To this end, we are present worldwide through Oerlikon subsidiaries and sales partners and can usually also support customers on-site – an invaluable benefit in this day and age. Our network of partners is substantial and we also have technological cooperations with third-party companies. With all these strengths, we have tapped into one of the broadest portfolios of offerings within the nonwovens market – and a growing number of customers.

All this has prepared us to take on the challenges of the future. We are constantly thinking ahead. Our meltblown systems, for example, are extremely flexible in design. As a result, our clientèle can manufacture both nonwovens for face mask production as well as other high-quality filters. In addition to constantly optimizing our technologies, we are hugely committed to the topic of sustainability, a topic that we at Oerlikon have made our mission. For us in the Nonwoven division, this means in particular the development and cooperation utilization of new polymers for more sustainable nonwovens.

With the development of new high-performance filter fabrics and also sustainable nonwovens based on new polymers, we are securing the success of our customers and simultaneously strengthening consumer trust in the nonwovens industry.

As your reliable partner.



Rainer Straub, Head of Business Line Nonwoven

Oerlikon Nonwoven convinces with sustainable product portfolio

# Nonwovens - a versatile material for a diverse market



**T**he success of nonwovens lies in their unique and equally diverse and inexpensive manufacture that offers the most varied applications and application properties. The tidal wave of disposable nonwovens makes diapers, wipes and feminine hygiene articles absorbent and

A constantly-expanding global market: in 2019, the global consumption of nonwovens totaled 11.2 million tons or 307 billion m<sup>2</sup>, valued at US\$ 46.8 billion. To this end, the 'The Future of Global Nonwovens to 2024' study by Anglo-American consultancy Smithers Pira forecasts growth rates of 6.6% (tons), 7.4% (m<sup>2</sup>) and 6.7% (US\$) up to 2024. Here, the impact of the pandemic that came after the study was completed has not yet been factored in. It will undoubtedly be the case that national efforts to safeguard system-relevant supply chains will result in local shifts. Overall, it is not just the market for nonwovens for hygiene and filter applications that continues to show above-average growth.

Oerlikon Nonwoven was unveiled as a new competence brand within the Manmade Fibers business unit in 2017 and has since complemented the Oerlikon Neumag and Oerlikon Barmag brands as the specialist for nonwoven technologies. The company has meanwhile developed into a well-known player with a broad range of offerings. These not only include its successful meltblown systems for sophisticated filter media, but also highly-sophisticated and economically-attractive solutions with spunbond and airlaid technologies for the many further applications within an expanding global market.

high-performance nonwoven-based underpads for hospital beds reduce the incidence of bedsores among patients. Durable nonwovens often convince as (wet)solid and simultaneously limited-permeability air and liquid filters, reinforce roads as tear-resistant, chemically-resistant geotextiles surviving underground for many years. Sometimes, ultralightweight versions such as spunbond polypropylene are used as top sheets in diapers with 12 g/m<sup>2</sup> and less, other times they are produced as 350 g/m<sup>2</sup> articles in the form of airlaid cellulose super-absorbers for floor mops and even as 1,000 g/m<sup>2</sup> products for multifunctional geotextiles.

#### **Filtration: leading competences from Neumünster**

Filter nonwovens are currently being produced for billions of face masks alone. One of the leading companies in Europe, Innovatec Microfibre Technology, is currently manufacturing 1,500 tons of face mask nonwovens for in excess of 1.5 billion masks a year. For this, the German company increased its meltblown capacities to include three new systems in 2020 alone, with Oerlikon Nonwoven delivering two double-beam meltblown systems. And it is not alone here: Oerlikon Nonwoven has received orders from across the globe, as the meltblown technology developed there is considered one of the technically most efficient methods for producing highly-separating filter media made from plastic fibers. "Our customers appreciate above all the high evenness and the consistent quality of the produced

Spunbond geotextiles are also increasingly being used in road construction.

goods”, emphasizes Dr Ingo Mählmann, Head of Sales & Marketing at Oerlikon Nonwoven.

These meltblown systems can be used to manufacture nonwovens not just for all mask protection classes, but also for a wide range of filtration, insulation and sorption applications – without extensive conversion work being required. And these also include HEPA high-performance filters for air purification systems with separating degrees of 99.95 percent. Further increasing filter efficiency is the eCuTEC+ electro-charging unit – an in-house development – with which the filter media can be electrostatically charged. To this end, the media filter particles both mechanically and electrostatically. Without generating additional air resistance, the charge also ‘captures’ particles that would otherwise pass through the filter’s pores unhindered. And there will soon be a special hydro-charging unit for HEPA filters that permits even greater and, above all, more durable charging of filter media and that will therefore further increase the filter performance. “We are continually further expanding our offerings with our filtration know-how”, comments Dr Mählmann.

This also applies to a further Oerlikon Nonwoven technology used for filter applications: spunbond nonwovens. This nonwoven material is used in many air filters – including those deployed in face coverings – as a support or protective material. However, spunbond nonwovens can themselves be used as the filter medium in special configurations. With its – compared to meltblown nonwovens – lower filtering efficiency, it is predominantly used as a pre-filter medium in air filters or as liquid filters. In spunbond production, the technology from Neumünster guarantees superlative homogeneity, the result of its even melt distribution across the entire width of the spinning beam. The company has acquired considerable expertise in particular in the area of bicomponent spinning processes, with which various combined fiber cross-sections and also different fibers can be manufactured. Depending on the application, spinning systems can be designed and tested in an application-appropriate manner. The range starts with classical core-sheath bicomponent fibers and splitable fibers, all the way through to so-called



mixed fibers, where two fibers with different cross-sections are simultaneously spun using different polymers and laid to create a nonwoven.

### **Wipes: Phantom of progress**

A further volume growth market for disposable nonwovens are all forms of wipes for domestic and industrial use. Moist toilet tissues, hygiene wipes and cosmetic wipes, antibacterial wipes or wipes for surface cleaning – in 2019, such products consumed nonwovens totaling 1.3 million tons or 24.0 billion m<sup>2</sup>, val-

This technology will result in a sea change within the market, as wet wipes have until now been manufactured above all from hydroentangled carded nonwovens. Not only will the new Phantom systems being commissioned enable better products and less expensive processes, this innovative procedure will – as a result of its resource efficiency – also permit the manufacture of low-plastic and even plastic-free products by using biopolymers instead of the standard polyolefins common to date. “Manufacturers

cellulose or natural cotton fibers. And it is particularly for this reason that this technology is once again enjoying growing popularity.

### **Hygiene and medical applications: QSR is ace**

In the hygiene market, one of the largest nonwovens segments with 2.8 million tons, 155 billion m<sup>2</sup> consumed and with a market value of US\$ 10.2 billion in 2019, nonwoven applications for diapers and classical hygiene articles are growing at a rather moderate rate. In the smaller nonwovens market for medical applications, these materials are currently experiencing an absolute boom – not least due to national strategies for safeguarding supply chains for system-relevant materials, which also include inexpensive materials for operating room protective equipment, gurney and bed sheets and bandaging products. These nonwovens products have one thing in common: they are manufactured from polypropylene spunmelt (spunbond and spunbond/meltblown). These flexible nonwovens are very light, soft and nevertheless tear-resistant. They offer either breathability or barrier protection, if necessary.

Oerlikon Nonwoven has an ace up its sleeve for the production of these materials: QSR (Quality Sized Right) technology. Corresponding spunmelt systems enable nonwovens manufacturing with the most varied spunbond and meltblown configurations (SS, SMS, SSMMS). The advantage here: nonwovens producers now have highly-competitive solutions that comply with international quality standards at attractive prices for comparably small investments. As a result of intense collaborations and partnerships with technology providers,

**“Manufacturers and customers are increasingly focusing on sustainability, particularly when it comes to disposable items. We can tap into this trend – especially with regards to the overarching biopolymer strategy of the entire Oerlikon Polymer Processing Solutions Division”**

Fabio Zampollo, CEO of the Italy based Oerlikon joint venture TKW Materials

ued at US\$ 4.3 billion. Smithers Pira anticipates growth rates of 7.8% (tonnage), 6.9% (m<sup>2</sup>) and 6.9% (US\$) by 2024.

Oerlikon Nonwoven has a real workhorse at its disposal when it comes to the technologies for manufacturing wipes. The patented Phantom technology combines the very best properties of airlaid and spunmelt technologies and offers new, flexible possibilities for manufacturing coform nonwovens for wet and dry wipes– all with fewer resources and less expensively compared to classical wet wipe technologies. This has been made possible as a result of an exclusive license agreement with consumer goods giant Procter & Gamble for the worldwide marketing and sale of the entire jointly-developed Phantom production platform.

and customers are increasingly focusing on sustainability, particularly when it comes to disposable items. We can tap into this trend – especially with regards to the overarching biopolymer strategy of the entire Oerlikon Polymer Processing Solutions Division”, adds Fabio Zampollo, CEO of the Italy based Oerlikon joint venture TKW Materials.

Meltblown systems remain good options for manufacturing industrial wipes such as those with disinfecting, dirt-removing and oil-absorbing properties. Classical airlaid processes are perfect for producing end products including paper napkins and moist toilet paper. Airlaid processes can be used to make extremely environmentally-friendly nonwovens from up to 100 percent cellulose and also from blends with



Oerlikon Nonwoven is able to exclusively equip this type of system with unique features, allowing producers to easily distinguish themselves from the mass market for hygiene nonwovens and in turn secure sales markets and stabilize margins.

Airlaid technology opens up similar application areas, particularly for products with highly-absorbent nonwoven cores, such as those used in feminine hygiene articles. Karweb Nonwoven, a company owned by textile enterprise Selcuk Iplik, is the first producer in Turkey to manufacture corresponding nonwovens (Fibers & Filaments reported in issue no. 32). Here, the business opted for an Oerlikon Nonwoven system, a decision it has not regretted. This airlaid technology is not only characterized by its very even products; it can – in addition to the typically very short pulp fiber – also process longer fibers (short cut fibers) and powder into multifunctional nonwovens, simultaneously and in a homogeneous blend.

**Geotextiles and roofing: comprehensive process know-how**

Nonwovens are also used as building materials. The textile fabrics can acquire various properties for great product diversity using spunbond processes and different material combinations. Temperature- and impact-resistant, breathable and simultaneously resistant to moisture, mold and sepa-





ration, they are perfect for geotextiles deployed in road building and civil engineering, as underlay roofing membranes and bitumen roofing membranes in structural engineering and in bridge building as well as for sound insulation, insulation and drainage throughout the entire construction sector. A strongly-growing market, which together had a volume in excess of 1.5 million tons, 18.8 billion m<sup>2</sup> and US\$ 5.6 billion in 2019.

Oerlikon Nonwoven has developed and, in 2020, optimized a complete process for producing resistant geotextiles made from polyester or polypropylene – including all process steps from the polymer, the spunbond process and the various downstream processes (needling, stretching, etc.) all the way to appropriate winding. The systems promise high production benchmark nonwoven performance with basis-weights of up to 300 g/m<sup>2</sup> and more and filament titers of up to 9 dtex. These specifications convinced a Chinese nonwovens manufacturer that purchased a system for producing PP geo-nonwoven fabrics made from spunbond. The materials produced here are used in important infrastructure projects such as track bed construction for high-speed trains or highway road construction, for example.

Oerlikon Nonwoven also offers specialized spunbond processes for the production of underlayment nonwovens (PP or PET spunbonds), that are used for manufacturing underlayment roofing membranes, or for so-called bitumen roofing substrates (binder-reinforced PET spunbond), which are deployed in the manufacture of bitumen roofing membranes.

### Tomorrow's trends and drivers

Where is the nonwovens journey going? Most definitely increasingly in the direction of sustainability. To this end, the EU's introduction of the Single-Use Plastics Directive in 2019 has, according to Smithers Pira, attracted the most attention within the nonwovens industry in Europe and across the globe. These developments are also characterized by plastics-free manufacturing, the use of PLA and other biopolymers in meltblown and spunbond processes and even cellulose in conjunction with viscose fibers for airlaid applications. With regard to these topics, Oerlikon Nonwoven has announced that its meltblown and spunbond systems can process both biopolymers and recycled polymers such as R-PET, for example, and that comprehensive process know-how is available for each.

Important for market growth were, and remain, the lower costs for resources and energy compared to alternative technologies, for instance. Furthermore, nonwovens with certain performance properties have replaced other materials or have created new markets. Just one example: filters used to be made from textile materials – but are now to more than 90 percent manufactured using nonwovens and membranes. And a completely new, unrivaled product category was created: nonwoven electrostatic wipes and dusters. "Ultimately, the nonwovens markets are once again becoming more regional and local – a consequence of the pandemic that made supplier dependencies for face coverings and other protective apparel painfully clear", summarizes Head of Business Line Nonwoven Rainer Straub. » (tho)



A black and white portrait of Dr. Ingo Mählmann, a middle-aged man with short hair, wearing a suit and tie, smiling slightly. The portrait is set against a white background with a large red circular graphic element on the left side. The text "Be part" is written in large, bold, red letters to the right of the portrait.

# “Be part

What moves and drives Oerlikon Nonwoven as one of the competence brands within the Oerlikon Group – both now and in the future? In an interview, Dr Ingo Mählmann, Head of Sales & Marketing, talks about the successes since the company was established, strengths shown during the pandemic, future plans and the business’s insatiable passion.

# ing your tner of choice”

Dr Mählmann, Oerlikon Nonwoven was established in 2017. What were, and are, the objectives behind this?

The establishment of our own nonwovens brand gave our nonwovens activities a face and a clear commitment to this important market. The nonwovens market, and hence also the market for nonwovens systems, is an extremely innovative market characterized by above-average growth. Nonwovens are unrelentingly conquering new applications, also because of our innovative technologies. And we have been able to give the business much greater impetus with its own unit. That alone is paying dividends.

How so?

A lot has changed since it was established. We have grown significantly both in terms of staff members and our sales and have signed participation and collaboration agreements. We have been able to expand our business with existing clients and also acquired many new customers, both in Europe and in Asia. Here, some of this new business is undoubtedly the result of the pandemic and the extreme rise in the demand for nonwoven material for face masks. And this is also where our existing customers have invested.

In parallel to this, our engineers have been extremely active, allowing us to almost simultaneously optimize our

spunbond technology for geotextiles and develop and bring to market a unique charging unit, our ecuTEC+, for electrostatically-charging electret filter media for our meltblown systems in an online process.

What is your current market positioning?

We have one of the market's broadest portfolios. Furthermore, we offer our many years of comprehensive engineering know-how and consulting competence to provide our clientèle with a complete, tailor-made technological solution. We cater to numerous applications and operate as a small, flexible and high-impact unit within a strong group. Here, we exploit the global Oerlikon network with its worldwide sites, offering local service – as we do in China, for example. We have noticed that our competitors are struggling with local presence. It was particularly during lockdowns that this local presence proved to be a huge advantage and one that we will continue to use. Because we aim to be your partner of choice that does not leave its customers out in the rain.

How do you see the future?

We feel we are well-equipped. All of our systems solutions will continue to be in demand over the next few years. Here, our Phantom and QSR technologies will strengthen our business in additional markets, hence providing us with further stability in the nonwovens sector alone.

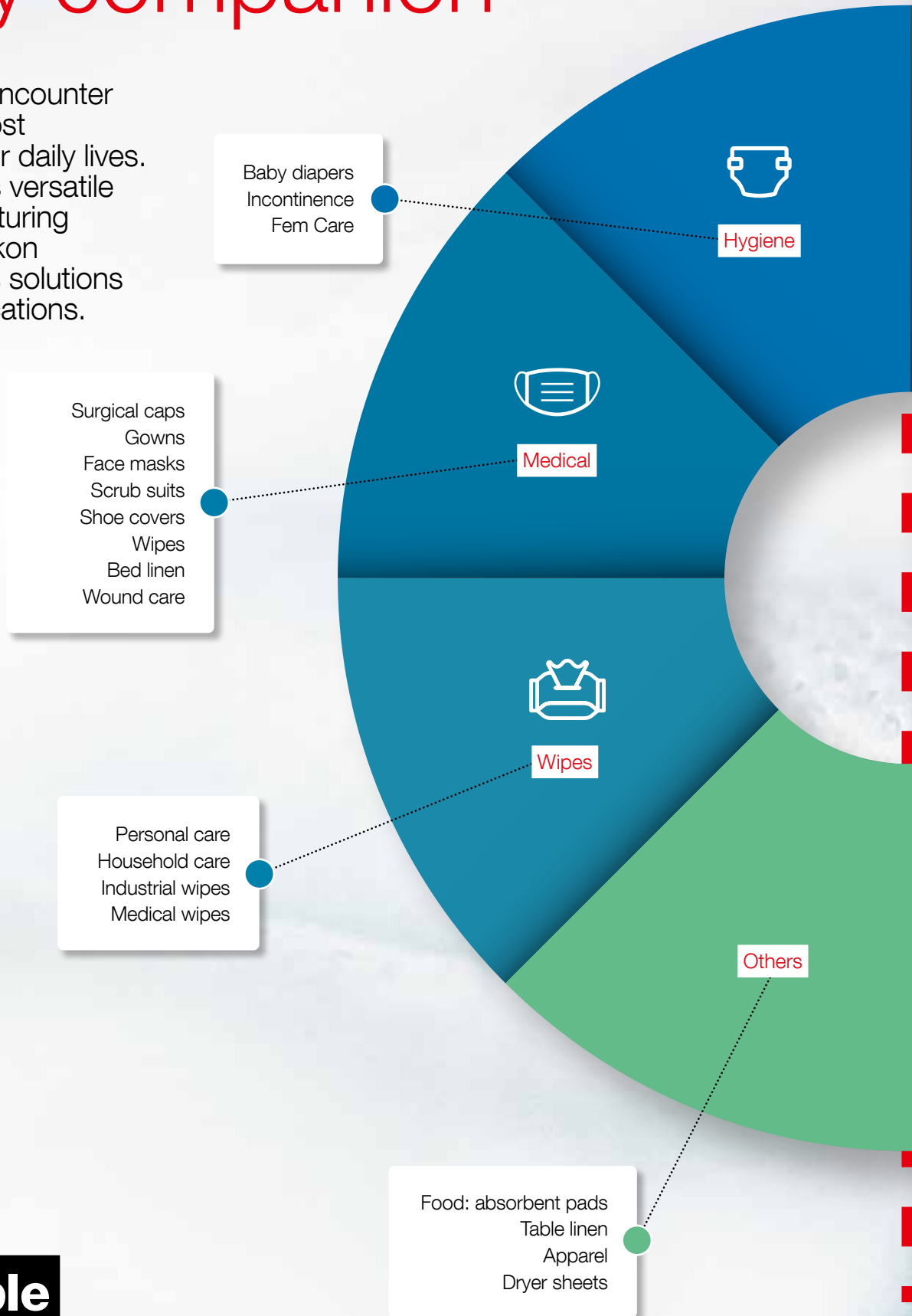
We are working continually on further new technological solutions that our customers will also be able to exploit in the future in order to support their business. For example, we are currently working on a hydro-charging unit for manufacturing electret filter media, which is due to be brought to market as early as the end of the year.

Furthermore, we will soon be concluding the conversion of the spunbond laboratory and the extension of our meltblown laboratory system. We are in the process of expansion our current filtration competences and supporting our customers with advice and a selected range of services outside the 'normal' systems business.

A further important issue for us is the range of topics focusing on sustainability. Currently, we are expanding our know-how and experience in processing PLA, the oldest alternative to fossil oil based plastic polymers. Processing trials and testing work with PLA were carried out using our meltblown and spunbond systems already over ten years ago; now, we are also in the process of testing further alternatives in collaboration with development partners. However, this has not suppressed our passion for nonwovens. » (tho)

# Disposable or durable - a daily companion

Nowadays, we encounter nonwovens almost everywhere in our daily lives. Their uses are as versatile as their manufacturing processes. Oerlikon Nonwoven offers solutions for various applications.



**Disposable**



**Durable**

# **Concentration competences in a strong brand**

In terms of technical development, we are currently pulling out all the stops at Oerlikon Nonwoven to acquire even more know-how for the nonwovens business of the future.

#### **New filtration competence center**

Recently, the filtration nonwovens market has attracted huge attention, particularly as a result of the explosion in the demand for filter nonwovens technologies for face masks, which has filled Oerlikon Nonwoven's order books. However, this topic is not the only one that the development strategists in Neumünster have been focusing on in terms of filters. The team will continue to expand existing know-how and competence and develop them into an important cornerstone of the business. Here, it is not only looking at bundling HR competences, but also at further developing the technologies and further investing in new laboratory measurement and testing technology. The building of a filtration competence center has been earmarked for 2022. In future, product and process development, nonwoven product application optimization and other services will be offered that go beyond the company's standard offerings.

#### **State-of-the-art spunbond laboratory**

The modernization of the spunbond laboratory in Neumünster has more or less been completed. The mechanical works have all been concluded now, with just the electronics still being updated. And customer trials will be possible again from January 2022. With this, the spunbond laboratory system, first commissioned back in 2004, is now state-of-the-art. The original SMS (spunbond meltblown spunbond) system was converted to exclusively spunbond technology with just one spinning beam (bicomponent technology). The spinning beam has been configured with a new cooling segment and a new depositing diffuser that now permit the reliable cooling and drawing of not only polyester filaments with high titers, but also filaments made from polypropylene with up 8-10 dtex. Furthermore, the new design of the spinning system ensures that the aerodynamic acceleration of the filaments responsible for generating the requisite drawing forces, takes place in an energy-efficient manner and without an excessive amount of compressed air. In addition to this the line has been modified to even more flexibility: now the depositing belt can be run in both directions – on one side, towards a calander and, on the other, towards two needling machines. This permits different processes to be run without the system requiring time-consuming reconfiguration. Furthermore, the laboratory system will be fitted with the latest Siemens SPS technology process control system with the current Human Machine Interface (HMI) and the same automation features with which the meltblown systems have already been equipped.



### **Head of Application Technology with a strong background**

In early August, Ralph Berkemann took charge of Application Technology in Neumünster, a department comprising Process Development and the Nonwovens Research & Development Center. He has more than 29 years of experience in the development of nonwovens technology platforms and filter media. “Our aim is to support sales and help customers choose the Oerlikon Nonwoven technology they need and provide them with a competitive edge. We supply product development support and develop tailor-made solutions for our customers”, explains Ralph Berkemann, talking about Application Technology’s tasks. He has numerous plans moving forward: “Bio-based and biodegradable nonwovens are topics that we will undoubtedly focus on in the future.”

### **Even greater filter performance with hydro-charging**

The ecuTEC+ electro-charging unit enables the electrostatic charging of filter nonwovens for face masks and air-filtration systems in order to attract and filter even the smallest particles in a relatively open-pore material. The newly-developed hydro-charging process enables even more efficient charging. This particularly increases the durability of the nonwoven charge so that, on the one hand, even higher filtration of fine particles is achieved without increasing the air resistance. On the other hand, hydro-charging also increases the shelf life of the filter media. Initial trials have been extremely promising. To date, there are no other system producers offering this kind of hydro-charging technology integrated into a meltblown system. The unique inline process charges nonwovens without the finished roll of nonwovens requiring unwinding or rewinding – hence saving an enormous amount of time and expense. It will be possible to retrofit the vast majority of existing Oerlikon Nonwoven meltblown systems with hydro-charging units. » (che)

The majority of Oerlikon Nonwoven’s meltblown systems will be able to be retrofitted with a hydro-charging unit.





# Into a sustainable future thanks to **'green substrates'**

The future is also being written at Oerlikon Nonwoven's Italian site, where the solutions, technologies and systems for manufacturing the high-performance coform material are developed. It is particularly technologies for wipes that have been, and continue to be, developed at the Palazzo Pignano, including the innovative Phantom platform. Fabio Zampollo, CEO of the Oerlikon joint venture partner Teknoweb Materials, talks about his understanding of innovation and a new collaboration.

## Mr Zampollo, what does innovation mean to you?

Being innovative means being able to imagine the future. We at Oerlikon Nonwoven ask ourselves: What will people need? What machines will be used to manufacture the products of tomorrow? How versatile do you have to be? What properties must the substrates have in order to be processed and be able to fulfill their functions well?

## What projects are you working on at the moment?

Among other things, we are currently concentrating on developing technologies that enable 100-percent 'green' coform substrates – not merely lower-plastic substrates as in the case of our competitors, but actually plastic-free ones. This relates to natural raw materials that are treated mechanically or chemically in order to make them compostable, fully recyclable and sustainable. At the same time, we are looking at raw materials generated through recycling. Our objective is to create processes that enable our customers to manufacture a high-quality, plastic-free product that simultaneously generates a significant profit margin thanks to the low total cost of ownership we achieve with our equipment. Revolutionary progress would, for example, be transforming a coform substrate for our Phantom technology that comprises up to 90 percent cellulose into a substrate that is 100 percent compostable. This is completely feasible because – as mentioned before – we are pursuing a different path with the support of competent, long-standing partners.

## You recently announced a strategic collaboration with A. Celli for festooning technology solutions. What does this mean for Oerlikon Nonwoven?

We are very proud of this partnership with a renowned company that has been supplying end-line solutions to the nonwovens industry for more than 75 years now. The first step is the joint development of festooning technology solutions. The new machines are from the family of F-LINE® multifunction systems. On the one hand, the new machines are alternatives for materials with Shape Memory, for which the conventional A.Celli spooling solutions cannot be used. On the other hand, we are jointly developing a special spooling technology for our coform products. They round off the solutions range for managing soft and thick materials as well as coform materials. We are absolutely certain that we have the very best partner for this in A.Celli. » (jcc)



# We love to build Plants, Machines and Co that sustainably produce the **your successful Pr** are made of

## **Filtration:**

### **leading competences from Neumünster**

Unique and highly-sophisticated nonwovens for filtration, insulation and sorption applications can be simply and efficiently manufactured thanks to Oerlikon Nonwoven's meltblown technology.



Scan me

## **First-class wipes using the Phantom technology**

With its Phantom platform, Oerlikon Nonwoven offers an alternative coform technology for manufacturing various wet wipes from pulp, fibers and spun filaments.



Scan me



Wipes



Hygiene



Core

# Components Materials Products

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### QSR: attractive spinnmelt systems for the hygiene and medical market

For manufacturing hygiene and medical nonwovens, the QSR (Quality Sized Right) technology offers an attractive solution for producing these highly-diverse spunbond and meltblown composites (SSMMS, SMMS, SSS, etc.) in a customizable new way.

Scan me



### Airlaid technology for sustainable nonwovens

The Oerlikon Nonwoven airlaid process is the ideal solution for processing pulp and/or cellulose fibers into high-end products for a wide range of applications.

### Comprehensive spunbond portfolio – always the right solution

For industrial nonwovens, Oerlikon Nonwoven systems are capable of high production capacities and yields with simultaneously low production costs.

Scan me



Scan me



Medical



Geotextile



Filtration

**The Sales Team – serving its customers**

# Excellent consultation is decisive

As a manufacturer of capital goods, a partnership-like relationship with its customers is important to Oerlikon Nonwoven. It forms the basis for stable, long-term supplier-customer relations that in turn enable the development of innovative solutions.

And the company's Sales Team is also aware of this. We asked them how they are specifically helping their customers to succeed in the dynamic nonwovens market.



Dr. Ingo Mählmann

“Sales of nonwovens manufacturing systems are frequently characterized by long and intensive technical discussions in terms of the products and technology. I have continued to maintain good relations with potential partners, customers and technology suppliers from my time as a process development manager. This has allowed me to bring both worlds – that of the suppliers and that of the customer – together to create efficient, but nevertheless tailor-made, solutions for our customers. It is essential that we understand the customer's perspective in order to consult customers and build viable, trust-based partnerships.”

(Dr. Ingo Mählmann, Head of Sales & Marketing)



Juliane Müller-Weigel

“I used to work in purchasing, so I can really put myself in the position of the customer. This helps me support our customers in their search for tailor-made solutions and bundle the appropriate offerings for them.”

(Juliane Müller-Weigel, Sales Manager)



Vida Zhuang

“I have been working for the Oerlikon Group for nine years and am responsible for the sale of all Oerlikon Nonwoven products in China. My mantra: using our professional technologies to support our customers develop and manufacture high value-added nonwoven products.”

(Vida Zhuang, Sales Manager China)



Ed McNally

“The sales and support of Oerlikon Nonwoven spunbond and melt-blown systems has been my labor of love for the past 28 years. And I believe that our customers and partners also know that.”

(Ed McNally, Sales Director)



Marco Bassi

“Our new Phantom coform technology produces superior product quality at lower prices. With this, we provide our customers with a competitive edge. As part of Oerlikon Nonwoven, I am hugely proud of helping our customers be successful in their markets.”

(Marco Bassi, Sales Manager)

# The ups and downs of the nonwovens markets

How has the pandemic influenced the nonwovens markets and their future? With what strengths, concepts and partners do well-known manufacturers compete? Oerlikon Nonwoven customers answer these and other interesting questions in brief statements.

**Vincent Bach, Managing Director of NOWOtex:**

“The outbreak of the coronavirus pandemic not only increased the demand for protective face masks. Players in many countries also instantly realized their dangerous dependency on non-domestic suppliers. Trade flows subject to disruptions, embargoes and a lack of containers also contributed to lend local face mask manufacturing systemic importance. This new starting situation encouraged us, as a specialist for needled nonwovens, to tap into a new sales market with the production of meltblown nonwovens. Here, the outstanding relationship between our development department and Oerlikon Nonwoven has proven to be absolutely invaluable. The Neumünster-based company has supplied us with a highly-productive system, which manufactures high-quality nonwovens and which can additionally electrostatically-charge them and hence provide superlative ‘Made in Germany’ filtering quality. Thanks to this technology and the huge demand, we have already been able to introduce a new product range. With billions of face masks in circulation, we are also thinking about their disposal and reutilization. Polypropylene, for example, has excellent recycling qualities, which we are planning to further improve in the medium term with in-house research. Last but not least, the Oerlikon Nonwoven system offers maximum flexibility, even for the manufacture of other nonwoven products.”

As an international nonwovens manufacturer, **NOWOtex** – founded in the German town of Eichenzell in 1993 – is one of the leading suppliers of products for the automobile, construction, filtration, industry and trade sectors. The specialist focuses on the highest quality standards, innovative technologies and state-of-the-art machines that are all located at the site in Germany. NOWOtex offers its customers an all-round service – from the idea all the way through to the finished end product. Important values include sustainability, environmental protection and reducing the consumption of resources.



**Enrico Buriani, CEO Advanced Textile Solutions – Nonwoven, RadiciGroup:**

„The nonwovens market has been growing for many years now. Needless to say, the pandemic has influenced the balance between supply and demand, while rising costs and raw materials shortages have impacted the market, particularly over the past few months. We do, however, anticipate things normalizing soon. Consumers will become increasingly skeptical of plastics, and of single-use items in particular. This represents a threat for nonwovens made from synthetic polymers. For this reason, we regard increased product development based on non-fossil or biodegradable raw materials as an important addition and an excellent opportunity for the future. However, some raw materials and the resulting products, such as PP spunbonds, are extremely difficult to replace, and it is here that we want to see more easily recyclable products and greater environmental awareness. A process that plastics and nonwovens associations should be promoting.

The main focus of our nonwovens business traditionally lies on the industrial markets. Here, we are successful above all as a result of the technical qualities of our products, our flexible production set-up and tailor-made customer solutions. In our projects, we value Oerlikon Nonwoven as a professional partner, one that is hugely reliable, delivers on time, offers superlative technical support and, last but not least, provides high-performance R&D resources.”

The **RadiciGroup**, headquartered in Gandino, Italy, is a global player focusing on its Specialty Chemicals, High Performance Polymers and Advanced Textile Solutions business units. In terms of synthetic fibers, the RadiciGroup is today one of the most globally-active Italian companies. Its products are the starting point for developments in the apparel, sports, furnishings, automobile, electrical/electronic appliance and household appliance sectors. Since 2021, the company has also been producing meltblown nonwovens with an Oerlikon Nonwoven line.

**Daniel Krumme, Managing Director of Innovatec Microfibre Technology:**

“The pandemic has dramatically increased demand for nonwovens and created new business fields. Simultaneously, numerous new manufacturers have established themselves. These factors will influence the business, at least in the medium term. This also applies to what is still our most important market – filtration. Here, it is not just demand that is increasing, so too are the requirements in terms of performance and quality. However, we are well-equipped to cope with these demands. Outside China, at least, we have the largest and most-modern machine park for manufacturing meltblown nonwovens. This makes us tremendously flexible and enables us to manufacture a very broad product portfolio with which we are able to cover the entire market. In this regard, we benefit hugely from the many years of collaboration with Oerlikon, a relationship characterized by reliability and trust. We have already invested in several meltblown systems from Neumünster, the most recent one accompanied by joint development work. Because a company such as ours depends both on system quality and technological progress.”

**Innovatec** was founded in the North Rhine-Westphalian town of Troisdorf, Germany, in 1995. The company employs a staff of meanwhile more than 100 and has developed into a leading manufacturer of meltblown nonwovens. It caters in particular to the filtration, medical, hygiene, food, construction industry and automotive nonwoven markets. In addition to office buildings, high-rack warehouses and laboratory facilities, Innovatec owns one of the largest and most-modern machine parks for meltblown production and specially-equipped spunbond systems.



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ID-No. 21108328

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