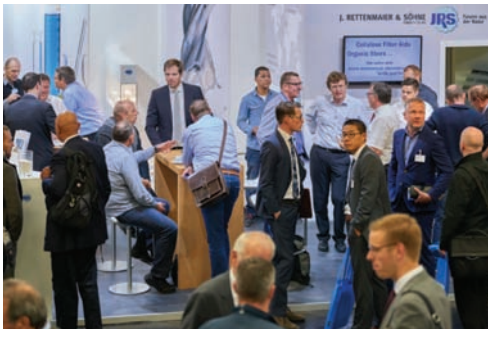


Innovative and Versatile

FILTECH 2016

A REVIEW

Filtech is one of the largest and most important filtration events worldwide. It has an established track record in bringing together the technical and commercial sectors to develop global business relationships.

Accompanying the prestigious Filtech exhibition, an International Conference as usal was organised. The FILTECH 2016 conference once again featured the latest advances and techniques in liquid/solid and gas/particle separation (dust, gas & air filtration) in three days of in-depth exposure. Topics covered included solid-liquid separation, solid-gas separation, membrane processes, filter media, testing, instrumentation and control, product related processes, simulation and modelling as well as special topics.

Also at FILTECH, there were two short courses available on October 10, 2016. The first course covered solid/liquid separation. This one day course is of interest to engineers, scientists, managers and other technical personnel involved in solid-liquid separation in the process and other industries. It is comprehensive review of the processes involved in the separation of solids from liquids.

The second course was all about fine dust separation in the process and other industries. This course was a comprehensive review of the processes involved in the separation of solid or liquid particles from gases.

The conference featured close to 200 technical papers, a plenary lecture and six keynote lectures presented by leading experts.

Technology and know-how transfer is

main target. The Filtech Conference is a must for everybody concerned with designing, improving, using, purchasing, selling or researching filtration and separation equipent - no matter from what industry, moreover learn and network with an international audience.

At the show, around 360 exhibitors featured targeted solutions for filtration and separations for all industries.

The Pore Size Meter PSM165 developed by **Topas** can determine the bubble point, overall pore size distribution and specific gas permeability without the use of mercury. The fist measurement determines loss of pressure of the dry sample for various gas volume flow rater. After that, the sample is wetted with a test liquid. According to the Dresden-based company, the liquid has low surface tension and high density. This ensures that the pores to be measured are sufficiently wetted. Then process with several steps is used to measure the differential pressure needed to displace the test liquid from the pores. It begins with a very low differential pressure level and reaching the bubble point. It describes the largest pore of the structure.

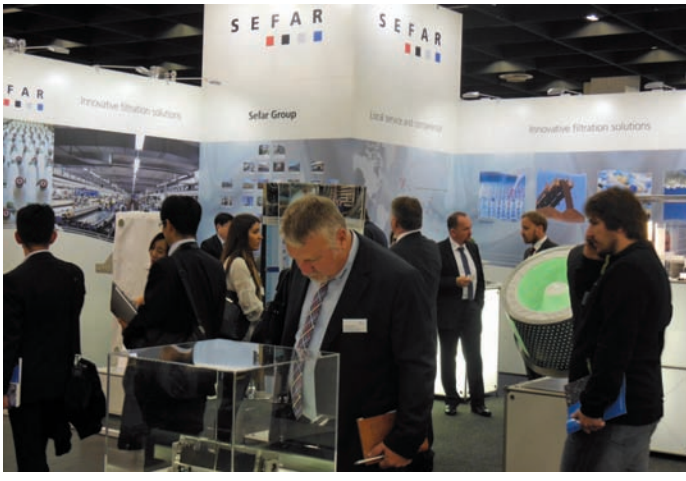
As the differential pressure increases, the size of the pores being released decreases until the test liquid is fully displaced from the pore structure. The relative comparison of dry and wet measurements results in a volume flow-specific differential pressure distribution. By means of a capillary model corrected with an empiric adjustment factor, the actual pore size distribution can be calculated.

Mann + Hummel has an impressive track record. Filtration performance can also be increased significantly even without the use of glass fibres. Various filter layers, in combination with a basic cellulose media, are often the medium of choice for these applications. The developed Multigrade technology is used in high-resistance fuel filters and can now be found in almost every motor vehicle with a diesel engine. These combinations of meltblown fine fibre layers with very dense filter papers provide for outstanding performance data.

In air filtration, media coated with nanofibres are among the front-runners in filter efficiency. A paper base is covered with ultra fine fibres using an electrospinning process, a technology performed by Mann + Hummel as part of its own manufacturing process. These fibres, which are only visible with electron microscopes and have a mean diameter of just 150 nanometres, ensure that even the finest particles of dust, with separation efficiency of up 99.98%, are reliably captured in the finished element.

'Over the years, the exhibition has grown to a major event in the field of filtration. Filtech is where we meet our most important suppliers in one place and get inspired by new ideas and the latest developments in filtration. This valuable input is crucial for our own innovative solutions.' said a spokesperson of Mann+Hummel.

Sefar is the leading manufacturer of precision fabrics from monofilaments for the screen printing and filtration markets.



Sefar products are used in a wide variety of industries, for electronics, graphics, medical, automotive, food and pharmaceutical applications to aerospace, mining & refining and architecture.

For woven wire filter fabrics a trend towards smaller pore diameters, larger throughput and high stability can be observed. The concept of the Swiss company Sefar to increase particle retention and simultaneously flow rate of their polymeric

monofilament fabrics is based on an special double weave technology. Such a fabric consists of a fine pored thin upper layer and a coarse pored mechanically stable sublayer like well known from asymmetric membranes. Both weave layers are produced on the same loom and are interconnected.

The **TWE** Group is one of the world's biggest and most successful companies in its field. It was founded in 1912 in Emsdetten, Germany. The company operates 13 state-of-the-art production facilities across Europe, China and the United States. The TWE Group produces nonwovens for a diverse range of markets and a wide variety of applications. These range from filtration, automotive, building, cleaning, healthcare and hygiene. TWE started as a jute weaving company and today specialises in the production of nonwoven products for a broad range of industries.

TWE's versatile range of air filter media contains roll goods, media for cut pieces, pocket filter and pleated elements, as well as specialities such as flame retardant and media containing micro-fibres. For liquid filtration the company's hydroentangled, needled and chemical bonded nonwoven media sets new standards in its sector. Its solid know-how and modern labs offer the company's customers considerable added value and its international R&D and sales teams work in close partnership with its clients with a future-orientated focus designed to create ever more innovative nonwoven solutions.

TWE showcased many of its existing products alongside the company's latest environmentally friendly range of advanced filtration products.

Simon Hueweler, marketing manager, added, 'The most important products showcased at Filtech was our nonwovens for HVAC and other pre-filter media, in particular those for coarse and medium dust filters. In addition, our wide range of liquid filtration products was on display. These products are excellent for filtration of emulsions and oils. We have also created belt filter media from which we expect to generate a high attention at the show. Our new synthetic engine air media portfolio was also showcased at the Filtech.'

Jürgen Hanel, Head of Technical Textiles, Monforts

The Montex 8500TT stenter is said to be ideal for the preparation of filter materials. It offers a stenter frame for drying and finishing woven and nonwoven materials, high stretching devices in length and weft direction up to 10,000 N, with high operating temperatures up to 320°C. According to Jürgen Hanel, Head of Technical Textiles, **Monforts** developed the first stenter with the possibility of thermosetting PTFE without oil greasing in the stenter chain and in the width adjustment. This protects workers and the environment from harmful oil vapours and keeps the filter material clean.

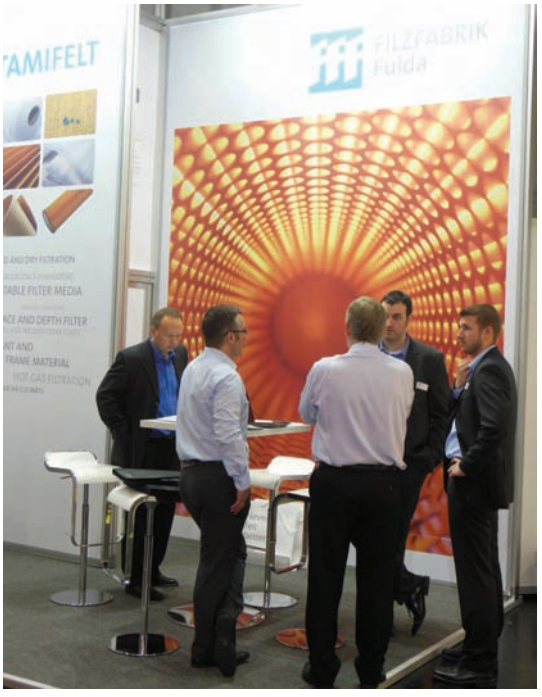
Furthermore, the foam padder is able to run two different foams at each side of the material. For nonwoven applications, this is recognised as a cost effective applicator whilst retaining the porosity of the materials. After modification, this applicator can be used for thick felt and woven materials. 'With the foam solution, our customer saves on drying costs and can run much higher production speeds compared with a liquid padder,' confirmed Jürgen Hanel.

The long established in 1884 as textile machinery manufacturer Monforts was present for the second time, Mr Hanel was very vocal about their participation, 'visitors at this year's event were more from Europe and a flux from US - an interesting sign for European filtration sector - were more focused on their requirements and were mainly for coating and drying for us. It was a great opportunity for us to understand their requirements, explore new avenues and tune our future developments to cater to this very important area of filtration and separation.'

Filzfabrik Fulda can look back to more than 70 years of experience in the manufacturing of tailor-made solutions for the filtration and separation industry. Their products can be found mainly in vehicles/engines as well as in air pollution control applications.

Their TAMIFELT product ranges are high quality filter media, frame and gasket materials.

Fiber polymers and binding agents can be chosen according to the prevailing conditions during the



application in order to achieve optimum performance and service life. Additional functionalization such as hydrophobic-oleophobic behavior, electrical conductivity, microporous coatings or ePTFE membranes perfectly adjusts the product to its application.

Efficient inlet air cleaning for internal combustion engines and compressors is vital if you are to prevent a breakdown of a road vehicle or compressor. The essential performance characteristics are air flow restriction or differential pressure, dust collection efficiency, dust capacity and oil carry-over on oil bath air cleaners. **Particle Technology** have access to a range of fans and compressors allowing air flow rates up to 8000 m^3/hr to be achieved. A selection of calibrated dust feeders means that dust concentration can be controlled from a few mg/m^3 up to hundreds g/m^3.

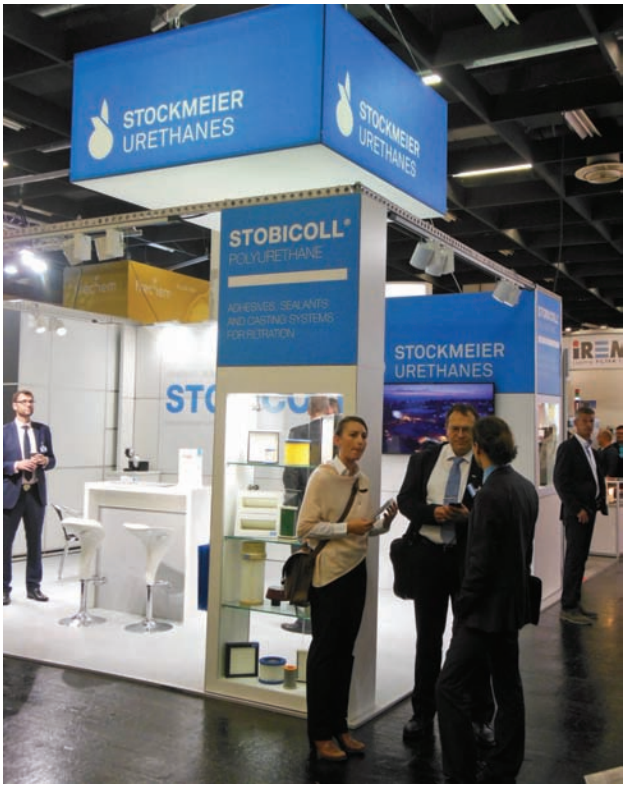
Phifer Incorporated was established in 1952 in Tuscaloosa, Alabama, as a weaver of aluminum insect screening. The same commitment to quality and customer service that has made them the leader in insect screening also allows them to provide superior mesh products for use in filters. Their variety of meshes gives you a wide range of choices for adding strength and support to virtually any type of media - cellulose, glass, synthetic and others.

In addition, they offer custom weaving, annealing, coating, slitting and packaging to your specifications. This enables them to meet your needs for processing filters of all types - air, oil, fuel and hydraulic fluids - and sizes.

Phifer products are used in the 50 states of US and Phifer has sales to over 100 countries around the world. The company's fleet of modern trucks delivers to customers in the US. and to all major ports for exporting. In recognition of outstanding export sales, Phifer was presented the prestigious Presidential 'E' and 'E Star' Awards.

Stockmeier Urethanes is one of the world's leading designer, formulator and manufacturers of Polyurethane systems.

'We have been designing, developing and supplying adhesives, sealants and moulding products to the global filtration industry since 1991 and has in depth knowledge of all types of filtration applications and the capacity to offer a customised approach.' Frank Steegmanns, Manager Adhesives, Stockmeier Urethanes said, 'This is our third time at Filtech and each time we exhibit we see huge growth. We have grown with Filtech to become a world leading supplier of bonding and sealing solutions for filtration. Filtech 2016 once again proved to be the perfect place to meet our current clients, introduce ourselves to new ones and discuss new ideas and applications. Filtech brings together all parts of the industry, from across the globe, to share experiences and information.'



Expo-Net Danmark manufacture an extensive range of products used in the production of filter cartridges.

Their range of extruded polymeric products offer easy to use, clean environmentally friendly products for manufacture of filter cartridges.

The products are used for both air and fluid applications and are compatible with a wide variety of filter media.

The technology portfolio of **Neenah** Gessner is very diverse and includes finishing and functionalisation of filter media. Thus, the company is able to meet individual needs and work with customers and development partners to realise the latest trends. Neenah Gessner is growing in a dynamic market environment characterised by changes, expansion, innovations and trends.

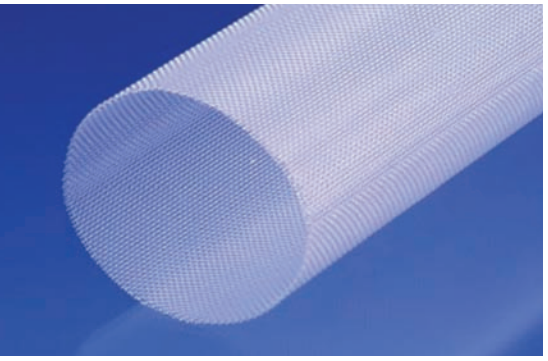
For more than 30 years, Neenah Gessner has also been pioneering a new, safer generation of flame-retardant engine air media.

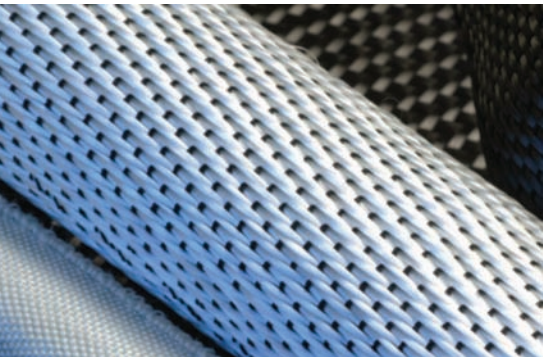
Apart from required filtration properties of pulp-based filter media, e.g. 99% plus separation, burn behaviour, including after immersion in water, is a strict requirement for the filter element in order to reduce the fire hazard of the air filter in the engine compartment.

If the requirements

cannot be met with single-layer media, Neenah Gessner uses multilayer combination media made from various materials. One of the largest groups comprises paper-meltblown combinations. By perfectly coordinating the layers, Neenah Gessner is able to offer the right medium for each application.

Heimbach Filtration GmbH has been a separate company, catering to international customers from various industries with headquarters in Germany and Sweden. The company





offers a unique portfolio concerning filtration technology.

'With many years of experience and in - depth knowledge of the processes and procedures, we see ourselves as a responsible and flexible partner,' says Managing Director Karl-Heinz Vaaßen.

'We offer our customers technical advice and develop new, specific solutions for sophisticated filter applications.'

Heimbach needlefelts make a strong impression with their cascade structure. They offer a large active filter area and a high level of separation precision. For the filtration process, this means while the filtrate is clear, the process generates higher throughput and thus greater production volume. 'Our needlefelts are very resistant to chemicals and mechanical stress, the latter thanks to a special carrier material, 'says Bernd Silkens, Product Manager Solid/Liquid Filtration.

Dr Mark Paterson, product development director, TAL

Needlefelts applications include vacuum belt filters, filter presses, filter bag systems, drum filters, compact belt filters and filter cartridge systems, pan filters, disk filters, pressure nutsches.

Heimbach's product range also includes technical woven textiles. Thanks to various combination options for monofil and multifil structures, a tailored solution can be created for separating solid particles from suspensions.

Technical Absorbents Ltd (TAL) demonstrated how its technology can be used to effectively remove water form a wide range of oils and fuels.

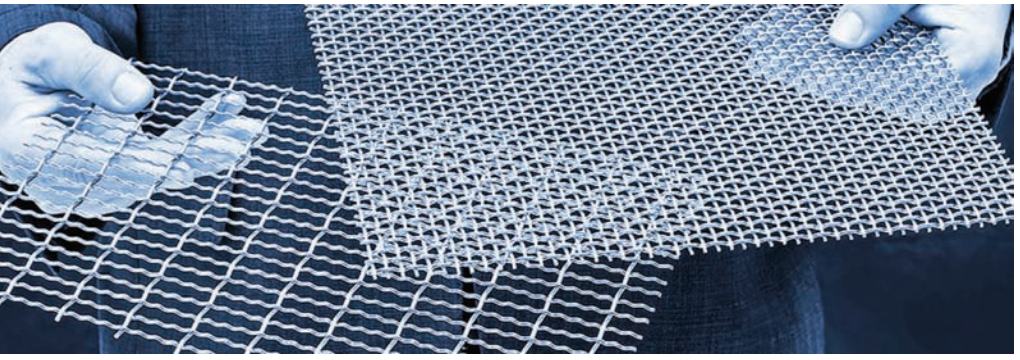
TAL displayed its core SAF™ (Super Absorbents Fibre) product range and also its converted nonwoven filter media fabrics. A team of product development specialists was available to demonstrate how the products work and provide advice if required.

A significant reason for the majority of oil and fuel system failures is the presence of high water levels in dissolved, dispersed and free water. The SAF-based filter media fabrics can remove both dispersed and free water to very low ppm levels which results in reduced fuel and oil degradation, and provides the required filter quality for efficient machine operation.

'SAF absorbs up to 200 times its own weight in demineralised water,' explained Dr Mark Paterson, product development director. 'As a result, it is a key component for a wide range of enhanced nonwoven filter media fabrics that are designed to remove high levels of water and particulates from aviation fuel, automotive diesel and a wide range of oils. Such fabrics help reduce problems associated with water contamination. We have developed a diverse range of products for such applications. We can also work closely with customers to design and manufacture bespoke fabrics to meet specific requirements,' he added.

Dr Mark Paterson said,' the Filtech event is very relevant to our line of products, 60% of the visitors to our stand shown interest in SAF to be blended with other synthetic fibres such as polyester, cellulose, nylon and aramids. A wide range of spun yarns from SAF can be produced using common spinning technologies. Since SAF can be incorporated into woven materials and fabrics, after first being processed into a yarn. We found more number of visitors from Europe, China and some from Africa at this year event, and surprisingly from USA too.'

Haver and Boecker showcased an entirely new and unique filtration media at Filtech this year that offers unsurpassed performance characteristics. The company displayed its latest woven wire cloth products for filtration, cleaning, homogenising, protecting, securing and optimising, as well as design and simulation capabilities. The company's



focus was centred on its newly developed three dimensional high performance metal filter cloth: Minimesh RPD HIFLO-S.

Haver and Boecker's competitive advantage lies in its unique experience and continuous programme of research, which keeps it one step ahead of its competitors. This combination of tradition and innovation allows it to meet and usually exceed the high expectations of its customers. Furthermore, the exacting control of its production processes begins with its own design and manufacture of the machines that it uses and extends right through to its tightly controlled production processes.

RPD HIFLO-S offers significantly longer service life for increased production runs and reliability. Where conventional filter cloths have reached their limits, the newly developed RPD HIFLO-S opens up new dimensions for filtration.

Using an entirely new weaving technology developed by Haver and Boecker, a three dimensional pore geometry is created that makes industrial filtration processes more efficient, faster and more economical than ever before.

Over the last few years, Pfaff has intensively expanded its activities in sealing textile materials winning industrial awards for several innovations. Customers trust in the competency and innovative ability of **PFAFF** in filter production. The new Pfaff Industriesysteme und Maschinen GmbH can now plan and implement entire production lines for manufacturing filters.

The system FPS 300 produces ready-made filter pockets of the highest quality at a speed of 24 m/min! Thanks to Servo technology, individual setting options and the finest needles of only 1.4 mm in diameter, the system provides first-class quality at the maximum level of automation. The FPS 300 produces filter pockets with conical or constant stitch loosening, with straight or waist contours and in special forms in the area of outer seam. Every step in the process is automatic: feeding, sewing, sealing of all seams below and above the surface, and stacking finished filter pockets.

This modern sewing unit ensures maximum process reliability when welding (continuous) tubes with length seams due to the fully automatic production. The machine processes tubes with a diameter from 60 to 350 mm, the tubes can be welded by hot air or by ultrasonic. On the 4507, bales of raw material are unrolled, formed, and subsequently welded. Hoses are automatically cut and ejected after welding. Incision lengths programmable via display.

As early as 1966 **Gebr. Röders** began producing needle felts in addition to wool felts. As a spin-off, the production of the first filtration felts was launched in 1972 and ever since 1986, based on they proprietary patent, they have manufactured needle-felt hoses for trenchless pipeline rehabilitation. As one of the pioneers in this industry they obtained DIN EN ISO 9001 certification. That has enabled them in recent years to gain the reputation of a dependable industrial partner in the development and production of highly specialized textiles and their applications.

To meet Gebr. Röders social obligations in terms of the proper conservation of the environment, they have converted entire source of energy to renewable energies. They not only produce natural product SOLTA®FELT wool felt, but also SOLTA®FILT filter media, SOLTA®LINER hoses for trenchless pipe rehabilitation and SOLTA®TEC needle felts, exclusively with electricity generated from 100% water power and which are thereby absolutely CO2-free.

Over the years **CFF** has developed countless products based upon the use of natural raw materials and despite being passed through an intensive manufacturing process, they remain integrated into the natural cycle:

At Filtech CFF showcased products developed for a range of manufacturing industries, which includes products required for liquid filtration using organic natural fibres. Thus they offered a clear green alternative to the use of mineral filter aids like diatomaceous earth and perlite and thanks to their optimisation process and are able to lower consumption rates with far less waste.

In the area of filtration CFF leads the field with its DIACEL product range. These high-tech products are used as filter aids in a wide range of filtration applications and in direct contrast to the mineral filtration agents diatomaceous earth and perlite, are made of organic, regenerating raw materials. DIACEL can be used as precoat as well as in the 'bodyfeed'. These sophisticated filter aids are not only suitable for manufacturing industries in the non-food area but

can also be used in the food and pharmaceutical industry. The production standards at CFF set the benchmark for others and its customers trust their production standards according to FCC and GMP.

Worldwide manufacturing company FiberVisions is the leader in polyolefin staple fibres for nonwoven applications, as well as being the world's leading

supplier of bi-component fibres thanks to its joint venture **ES FiberVisions**. Dedicated to using the most technologically advanced manufacturing facilities, the company provides innovative products to industries including personal hygiene, textiles, automotive and construction.

The upcoming Filtech provided great opportunity for FiberVisions to showcase its capabilities and meet with new and potential customers. The company presented a number of its bi-component and PP monocomponent fiber types under the Intercept™ brand to show solutions to a variety of filtration needs, such as improved filtration efficiency, improved dust holding capacity, increased filter media stiffness and reduced pressure drop.

Adhesives used in filter media manufacturing have to meet tough demands: different requirements with regard to air filtration in vehicles and buildings, as well as a wide range of filter materials and manufacturing methods. And the demands are getting tougher each day, for instance due to more compact engines. **Jowat** presented the latest developments in adhesive solutions, which are characterised by high heat resistance for the hardening process of filter papers impregnated with phenolic resin, and high flexibility during the installation and the change of air filter elements. In addition, the products have excellent processing characteristics and provide a high value contribution.

Jowatherm® and Jowat-Highterm® adhesives for pleating and frame assembly provide a high initial strength as well as an open time adapted to the typical process speed.

The low application amount required with Jowatherm-Reaktant® and Jowat-Toptherm® adhesives for laminating activated charcoal media ensures a large surface of activated charcoal, therefore providing the best air filtration effect and increasing the performance of the filter.

Mr Michael Dressler, Product Manager, Jowat SE, said, 'Automotive companies and their sub-suppliers of internationally renowned companies place confidence in the innovative adhesives made by Jowat. Adhesives from Jowat SE are used throughout the entire supply chain : from pre-coating with thermoplastic hot melts directly onto the foil or the textile, to the production of interior components, and to the final assembly in the vehicle.'

'Jowatherm-Reaktant® facilitates the manufacture of passenger cell air filters in OEM quality. Due to the latest developments in Jowat-Toptherm® 263.15 polyolefin hot melts, the same adhesive can be used for manufacturing the activated charcoal filter media as well as the filter frames.'

At **GKD**, they are able to create efficient systems, equipment and components integrated perfectly into the processes of their customers across all industry sectors. Their customers receive the products either as pre-assembled stock goods or in application-specific solution, which are manufactured customized to customers' processes. The wide range of industrial areas in which GKD products are used emphasizes experience and expertise in development and manufacturing. The industry mix ranges from the automobile and aerospace industries, medical and environmental technology etc.

Mr Michael Dressler, Product Manager, Jowat on extreme left

Aycliffe Filtration Ltd (AFL) launched its multimedia and oil removal filter duo cartridges at Filtech. AFL's new multimedia cartridge will be available in several configurations of media, with either a wound or meltblown depth filter outer. Using second stage phosphate treatment, it acts as a water softener and corrosion inhibitor or carbon for removing odour, colour and taste.

AFL provides innovative filter solutions for a growing customer base covering all industries and applications. The unique merits of AFL include their ability to produce bespoke products for customers in small or large numbers while also supplying traditionally configured cartridges. Mobile and static filter systems have been designed for supplying

ultra pure water for cleaning purposes in several areas such as window and vehicle cleaning and their GreyMax systems for cleaning waste water.

AFL's new ENVirol oil removal products for trace oil and hydrocarbon removal, are suitable for an array of industrial outlets such as oil and gas production waters, refinery process, disposal waters and bund waters. The cartridges are easy to install and experience high flow rates and low differential with up to 99 per cent oil removal.

The ENVirol filter cartridges offer a compact solution that reduces the environmental impact of oilfield and process industry operations. The vessel and cartridge package can be used without interrupting the existing processes, improving reliability and efficiency all at a lower cost.

David Franks, director of AFL, said, 'ENVirol is manufactured and converted into cartridges by AFL, we offer a complete test and design service to customers to ensure superior oil removal performance using the correct types and size of system. The new multimedia cartridges offering combined oil and sediment removal are gaining much interest and we are proud to launch them at Filtech 2016.'

BRANOfilter has been producing top products made of nonwoven fabric & paper since 1968. Its manufacturing facilities are located in Germany (Dietenhofen) the Czech Republic (Hlinsko) and China (Ningbo).

With the Business Unit 'BRANOhvac' BRANOfilter is able to offer a large range of filter systems for air conditioning facilities. The focus is on the manufacturing of panel filters. In this field BRANOfilter works together with amongst others, the German filter media manufacturer IREMA-Filter. The panel filters of BRANOfilter are in accordance with the latest requirements of DIN EN 779 for the filter classes M5 - F9 and can be purchased in different types of frames and measurements. The flexibility which comes with being a medium-sized company means that BRANOfilter is able to produce premium filters in different lot sizes within a short lead time.

Conwed highlighted its co-extrusion netting. Co-extrusion is a multi-layer extruded netting that can be subsequently oriented where different polymers can form different layers on the same netting configuration. It is a square netting construction and Conwed has the ability to build netting with A/B, A/B/A, and A/B/C layer combinations. 'Netting is an ideal reinforcement and bonding element to create exceptional composites with film, paper, foil, foam, bubble wrap, nonwoven and other fabrics. It is lightweight yet very strong. It is an exceptional reinforcement material.

Nettings are used in filtration devices for various purposes:

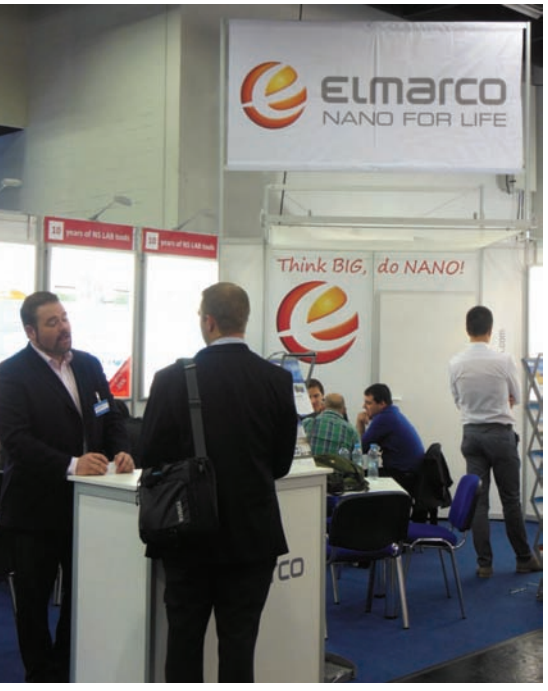
- They provide a sturdy case to contain filter media in cartridge applications protecting delicate filter media from damage during manufacturing, handling and cleaning.
- Spacer nettings are used when fluid or air is directed in a parallel way through the filter media and consistent gapping is needed for optimal filter performance. A good example of this is Reverse Osmosis where, for example, sea water is converted to fresh water.
- Pleating is added to filters, via a roll-to-roll or knife pleating, to allow the use of more media in a confined space.
- The filter media is supported with nettings in order to also meet pressure requirements of the filtration process. The filter device is completely recyclable or incinerable, which is not the case when using metal support materials.

P2i has recently developed an innovative, new roll-to-roll filtration machine. These machines are able to handle an incredibly wide range of materials, membranes and fabrics. The P2i machines are able to deploy precision tension control and, as a result, can process the most fragile membranes. They are fully automated with a software controlled deposition process and have full data logging capability. The robust design allows the machines to work effectively in high-volume manufacturing environments. The highest levels of water and oil repellency are achieved through the use of the patented P2i pulsed plasma deposition process. The machine is set to make a big impact in the filtration industry, and will also prove effective in other markets, such as high-performance

BRANOfilter products

textiles and packaging.

Elmarco's NanospiderTM ('NS') Production Line is the ideal piece of electrospinning equipment for those ready to scale up their process from a lab concept to high volume industrial production. Elmarco makes safe and reliable equipment that delivers cost effective, uniform nanofibre webs. Optimized for non water soluble polymers, with minimized usage of solvents the NS 4S1000U is based on Elmarco's proprietary needle-free electrospinning process, to deliver the performance that your products and customers need.



Elmarco's NanospiderTM NS 8S1600U is the base spinning unit for the industrial production of nanofibres in our scalable electrospinning line. Combining of up to four spinning units, NS Production Lines deliver high volume throughput for cost effective production. Optimized for non water soluble polymers, the NS 8S1600U is based on Elmarco's proprietary needle-free electrospinning process, to deliver the performance that your products and customers need.

Chris Sipes, Director Air Filtration of Elmarco based in USA was enthusiatic on Filtech and said, 'Although we are not a kind of filter company, we have no doubt about participation in Filtech, as it keeps us in touch with right people and latest developments within the filtration community. Moreover, there is no other exhibition where we could gain so many customers, as we regularly do at Filtech!'

Nucleus is now one of the leading manufacturers of ultrasonic welding machines with rotating Sonotrode for the continuous welding of thermoplastic materials.

'In addition to simple manual jobs Nucleus develops customized solutions. Major focus is on the automation. This results in innovative fully automated production equipment for the filter technology,' emphasized Nico Trajanoski, sales manager.

Kerafol manufactures Ceramic Flat Membranes in various geometries (discs and plates) and pore sizes (micro filtration and ultra filtration).

'The combination of the ceramic material (as the best of all available membrane materials) and the Dynamic Cross Flow Filtration (as the most effective filtration technique) leads to a maximum of filtration flux together with low energy consumption,' elucidated Christian Munch, marketing manager.

One can discover the widely ranging fields of application of Rotation filtration with Ceramic Membranes.

Mobi-Air® always entirely re-think next equipment generation, and design not only the filtration process but also the entire equipment portfolio from the ground up. They put all thoughts together, into one, all to a new visionary modular equipment platform.

As such, Mobi-Air has invested in the latest state-of-the-art production technology and dedicated tooling, sourcing high precision critical process parts from Germany, and assembling the final product in Asia. That's the Mobi-Air formula for delivering a break-through price performance to the filtration sector.

It was first event for Mobi-Air. Martin Scaife, managing director based in Singapore was present along with President - Europe, James Barton who is based in Aachen, Germany. On their products for filtration/air sector Martin Scaife stressed, 'Mobi-Air has built an outstanding reputation in industrial HVAC systems both for quality and service. We have the skills and resources to handle the most complex and demanding industrial projects, from feasibility analysis and engineering, design, construction, commissioning and maintenance of HVAC system. No matter what size your HVAC, refrigeration or mechanical services project, we provide our suppliers with focused turn-key solutions.'

'Mobi-Air's next generation hybrid air handling platform has the advantages of both dust collector and drum filter technology with a safe air handling of 5-250 kcmh in a standardized equipment platform range with no assembly required, and the next generation modular plug & play fan technology is compact high performance utility platform incorporating state-of-the-art sound emission technology - housing up to 16 fans, operate as a stand-alone module or combine via quick-couple interface.'

On Mobi-Air participation Martin Scaife, said, 'being our first Filtech - 20% of visitors to our stand were known to us from our previous associations, but was great opportunity to disseminate on novel modular equipments that we offer to prospective clients in the filtration/air technology sectors. Most of the enquiries were from European clients. After analyzing the enquiries we shall

Martin Scaife, managing director (left) and James Barton, president - Europe, of Mobi-Air

decide for the Filtech 2018 participation.'

IREMA's filter media products are exclusively manufactured on production machines designed and built in-house. The specific manufacturing technology for filter media enables them to flexibly design media out of coarse, fine and ultrafine fibres.

The combination of different fibre diameters allows to design and manufacture progressive filter media. This provides the opportunity to achieve an excellent balance between filtration efficiency, air permeability and durability. By taking micro and very fine fibres (in diameters less than 1 µm) their media can capture fine and very fine

particles when air is filtered.

Polypropylene (PP) as the basic material has additional outstanding advantages. PP-material is hydrophobic and does not support the growth of microorganisms such as bacteria, mold and fungi.

IREMA filter media are used in a variety of applications where different technical features are a must:

- Cabin air
- HVAC
- Engine air
- Liquid filtration.

'Multitexx concentrates on manufacturing nonwovens of outstanding quality for a wide range of applications. Drawing on more than 15 years of experience in the manufacture of PET spunbonds, they make particularly uniform thermo-calendered spunbond nonwovens of polyester (PET), commented Dr Daniel Placke, Product development manager.

They have their production facility in Herdecke, Germany. Their manufacturing process yields spunbonds of outstanding evenness at web widths of up to 3200 mm and variable square weights.

Entec odour filters are for the purpose of odour treatment, there are various possibilities depending on the sector which they are used. Entec has specialised in the field of odour treatment. The wide knowledge and experience they have gained have led to a range of high-grade products and services in the odour treatment field.

The Entec HC70 odour filter - This filter is self-breathing and is used to combat the smell originating from sewage pumping stations and storage/ sedimantation basins.

There is a stainless steel cassette or a filterbag inside the filter filled with filter granules. By fitting the filter on the roof of a pumping station or basin, the contaminated air streams are led through the odour filter by convection. When the contaminated air, such as H2S flows through the Entec HC70 filter, the filter granules react with the contaminated air and neutralise them so the surroundings are free from bad odour.

Entec has already installed more than 1100 odour filters. More than 1100 places free from bad odour.

The core of **Blücher GmbH** is based on spherical, high-performance adsorbents, which are similar to activated carbon in how they react, but far superior in performance. They are branded - Saratoga and Saratech - and pollutants, odours and other unwanted substances can be reliably filtered out of gases and fluids and then safely bonded inside them.

Blücher filter technologies can be used wherever undesirable or even hazardous pollution has to be eliminated. A recent application area has been the extraction of metals from ex-industrial sites by means of a hydrometallurgical process.

Research, development and innovation have also made Blücher a world market leader for CBRN (chemical, biological, radiological and nuclear defense) protection. Over ten million of the company's Saratoga-branded protective suits and systems, for instance, have so far been supplied in over 40 countries.

The Saratech high-performance adsorbents and hydrometallurgical technologies of Blücher provide an opportunity to economically use even challenging deposits. Special technologies have now been developed, which enable complex wastes containing metals to be rendered completely harmless.

Jakob Härdi AG develops, produces and sells high-loft nonwovens, filter media and other customized products. With more than 100 years of know-how in these areas Jakob Härdi AG is one of the leading suppliers and is internationally renowned for its innovative products. From individual small-scale production through to large batch sizes, there are many possible ways to cater to the wishes of their customers. All stages of production from development through to production and finishing of nonwovens are carried out in-house.

Known as Premium manufacturer, the company **Dürkopp Adler** is developing the most innovative automatic sewing units, standard sewing machines, flat and post-bed machines, cylinder arm machines, lock and chain stitch machines, and CNC-controlled sewing unit with on outstanding performance and quality.

Dürkopp Adler exhibited their M-TYPE 869-100 CLASSIC - The special machine for the filter industry.

Sewing operations in tubular workpieces, as e.g. attaching of metal rings to up to 10 m long tube filters, make especially high demands on the operating means.

The two M-TYPE free arm machines of class 869-100 with a particularly large clearance of 1,000 mm under the machine arm are predestined for these applications. The typical equipment features of the M-TYPE CLASSIC version guarantee maximum quality and efficiency at an attractive price.

DinAir is one of Europe's leading manufacturers of original air filters which are incorporated into customers' end products, Dinair is dedicated to the

customers' filtration problems, particularly where they call for the highest level of technical expertise. They develop and produce air filters and filter inserts encompassing all existing techniques and filter media, and qualify as a leader in the development of new techniques.

Dinair has several different pleating machines as well as pocket filter lines using the latest technology. They have fully automated assembly lines, equipment for foaming PU gaskets and test equipment for scanning in compliance with EN1822.

Bosman Fuzzy Filter lies in a pink multi-fibre ball. The innovative, cost effective Fuzzy Filter uses compressible media for variable porosity, with high solids storage and non-filtered water needed for washing.

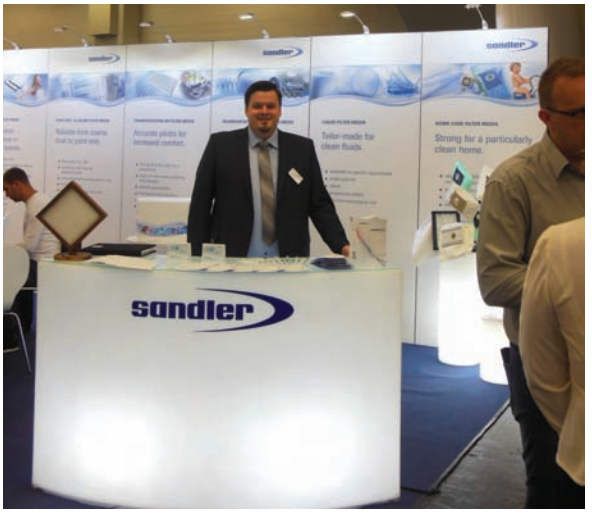
The high porosity of the ball allows hydraulic filtration rates up to 100 $m^3/m^2/h$. The Fuzzy Filters achieves a high rate of solids removal down to particle sizes of 4 microns. The total porosity of the filter bed can be altered to suit influent characteristics by mechanically compressing the media.

The media porosity and solids removal can be optimized to maximize solids capture and run time.

The filter industry has a wide variety of requirements from an adhesive perspective and **Kleiberit** manufacturing adhesives and coatings. The adhesives must be able to embed the filters securely and are also subjected a wide range of different environments. For these applications, and in addition to the 2C PUR liquid and epoxy adhesives, hotmelts can be used. They are predominately used for fold fixing, bonding of the fold bands as well as the bonding of the filter top and sides. Reactive hotmelts are being used for particularly innovative applications. These combine the positive product properties such as temperature and climate resistance, a permanent flexible glue line with the demands for high green and handling strength. In addition to this reactive polyurethane hotmelts have excellent fogging values. They are low in emission and neutral in odour.

Sandler's new synthetic filter medium enAIRsave combines optimum performance and reduced energy usage. Three filtering layers make enAIRsave an ideal depth filter medium : a particularly large inner surface is achieved through the different filter layers and the use of finest submicron fibres. Large quantities of dust can be deposited in the coarser layers, optimising filtration performance throughout the entire service life according to information from the manufacturer.

Air can keep flowing even if the filter



is already loaded with dust, the pressure drop increases only very slowly during use. The filter pockets are also self-supporting, adjusting to the volume flow in the ventilation shaft and offering only very little air resistance themselves.

Peter Reich, Manager Filtration Products Division, Sandler GmbH: 'In recent years, the number of visitors has increased along with the scale of the trade fair. Being a nonwovens manufacturer, the Filtech brings together exactly the audience we are looking to address. Therefore, the Filtech 2016 again was a great success for Sandler.'

Low and Bonar is leading producers of filter media and filters over the world who use Colback have already been able to experience the significant increase of the end performance of their products. Colback is suitable for multiple fields within the filtration market such as Cabin Air, HVAC, HEPA/ULPA, APC/Gas Turbine and several liquid filtration applications.

Colback (PET/PA6) and Colback Pro (PET/PP) are made of bi-component endless filaments with a unique skin/core composition. The polyester core, which all Colback variants have in common, gives it unmatched strength and dimensional stability.

The polyamide 6 or polypropylene skin can be tuned for processing and increased performance of the filter medium. The 2-step production process of Colback ensures a top quality (including high mass regularity of the fleece) and great flexibility in yarn and fleece properties.

Measurement systems are required in research and development, in industrial processes, as well as in environmental and climatic studies where size distribution and concentration of nanoparticles is reliably determined. Additional areas of use include measurements at the workplace and in enclosed spaces to ensure health and safety at work. **Palas** offers sophisticated and dependable systems for various measurement tasks in research and industry for determining particle size and number in the nanoscale range from 4 nm to 1,400 nm.

Palas Welas 3000 particle counters are used to measure the number of particles upstream from the filter and compares it to the number of particles downstream from the filter. These industry standard pieces of equipment are used to accurately determine the filtration efficiency at different particle sizes.

As a producer for welded wedge wire screens with a history of more than 90 years the name **Steinhaus** stands for reliability and highest quality. Optima slotted screens and slotted cylinders are made of cold drawn triangular profile wires with sharp edges. There are unbounded applications like dewatering, filtering, deslurrying and sizing.

Their production program includes, for example:

- wedge wire tubes & cylinders
- plain wedge wire screen panels
- high precision filter tubes down to 10 µm
- centrifuge baskets
- cylinders for screw press separators.

ATT