Platform for exchange of scientific research and innovations

FILTECH 2019

Sophisticated and state-of-the-art filtration and separation solutions play a key role in all industries. FILTECH is a global solution provider for targeted filtration & separation tasks covering all industries.

The largest filtration show world-wide FILTECH will take place from 22-24, October 2019 at the new venue KoelnMesse Cologne, where 425+ companies will present their cutting-edge products and innovations for the chemical industry, food & beverages, life science, minerals processing, pulp & paper, waste management, water treatment, environmental engineering, petrochemicals, nonwovens, composites, and many more.

Sophisticated and state of the art filtration and separation solutions play a key role in all industries to achieve cost-effective processing structures as well as reduced risks. FILTECH is a global solution provider for targeted filtration & separation tasks covering all industries.

The FILTECH Conference is the globally acknowledged platform for scientific exchange of the latest research results and knowledge transfer between theory and practice. It provides a representative survey of current research and state-of-the-art developments for filtration and separation targets in a wide range of sectors and covers all relevant subject areas and techniques for the separation of particles from liquids and gases.

An exciting programme comprosing 200 lectures from 30 countries gives a representative cross-section of the different procedures and applications of separation technology as well as across the industry about the applications, from the preparation of mineral raw materials, the

chemistry, environmental technology and water purifica tion down to the pharmacy and biotechnology.

Hengst

At Filtech, Hengst Filtration will be revealing its fast-growing business unit, 'Filtration for Industry & Environment' - which produces everything from filter solutions for industrial vacuum cleaners to filter cartridges for gas turbines.

At Booth F11 in Hall 11.1, the enterprise will be showcasing its extensive expertise in filtration and fluid management. After absorbing the two companies Nordic Air Filtration and Delbag, Hengst is now offering the best of two worlds. The company's well-structured development approach and expertise in large-scale production for the automotive industry has been merged with the speed and flexibility necessary for the development and production of industrial air filtration solutions.

For many years now, the company has been focusing on the consistent expansion of this business unit. Today, It covers the segments of industrial air filtration, air conditioning technology and air filtration, as well as filter solutions for household and professional applications. The preparation of other fields of application is underway.

In line with this effort, the company last year engaged an expert in industrial filtration for this business responsibility. Dr Thomas Netsch brings more than 20 years of experience in the field of industrial filtration to the enterprise. 'We are in a position to offer our customers both the highest quality standards in the area of engineered products and the ability to purchase common market filters as catalog items. What is more, we develop and manufacture filter elements in small quantities as well as in large-scale production. This combination of experience, flexibility and market knowledge is what sets Hengst apart,' declares Dr Thomas Netsch, Group Vice President Industrial Filtration, Hengst SE.

Filtration for Industry & Environment is an incredibly broad application area that has always had an important place in Hengst's portfolio. 'As a reflection of our ongoing commitment to our vision: 'we lead the world in filtration, making our planet a purer place ', we continuously build on our know-how and technologies in this area,' explains Jens Röttgering, Owner and Chairman of the Board, Hengst SE.

- Hengst Filtration

From industry to trade to private households - dependable air and fluid filtration plays a key role in ensuring the functional reliability of systems and equipment and the protection of health and the environment. And, since every filtration scenario brings along its own challenges, products are never off the rack, but represent custom solutions, where every detail has been matched precisely to specific requirements and application conditions. Whether you require air or fluid filtration or need a simple flat filter element or complex filter module - Hengst are the first and only contact you will need - from the development of high-quality solutions to cost-efficient series production of these solutions.

- Delbag

Whether restaurant kitchen, shopping center, hotel foyer, industrial hall or operating room - there is always an air filter that meets the individual requirements of the respective application areas. The current DELBAG® product range consists of more than 2,000 different standard filters and special filters that ensure clean air in commercial, industrial, and residential areas. The finest emulsion mists, toxic fumes, fine dusts, and material abrasion are filtered with the same reliability that odors, bacteria, fungal spores or viruses are filtered. In addition, air filters support profitable process control. Consumption costs for power, heating, and water are noticeably reduced and statutory requirements are safely met.

- Nordic Air Filtration

Nordic Air ranks among the market leaders for premium solutions in the industrial air filtration sector and supplies dealers and original equipment manufacturers around the globe. Manufacturing nearly 4,000 different filter products and processing more than 20 different types of filter media, Nordic Air Filtration offers an extensive product selection for gas turbines and industrial applications.

Hengst Filtration, Delbag, and Nordic Air Filtration products

FLSmidth Wiesbaden

The ClariTube from FLSmidth is a new developed concept for liquid filtration applications. It is an automatically operating filter with an effective cleaning of the filter media, allowing to remove filter cake layers from the media.

The unit uses metallic instead of textile filter media and regenerates the media by the operation of a high-pressure hydro jet device, achieving a high unreached lifetime with a significantly reduced maintenance requirement. The use of metallic media offers the advantage that the filter can be operated at a higher temperature and feed pressure compared to conventional candle filters. Due to the effective media cleaning, it can be operated without

usage of filter aid such as diatomaceous earth or cellulose, thereby offering unique advantages to many applications, including filtration of beverages.

ClariTube is based on a modular concept and usually consists of cylindrical filter elements, arranged in single or parallel rows. During the filtration process, all activated elements are in use simultaneously. When the cleaning process is activated, one or more elements are deactivated and cleaned, while the remaining elements in use, so that no interruption in the filtration process is necessary.

Lenzing Technik

Lenzing Technik will present the newly developed backwash filter Lenzing OptiFil®-M for the first time. While conventional backwash filters are designed for surface filtration in coarser areas down to 50 µm, the Lenzing OptiFil®-M is the first backwash filter especially optimized for cake-forming filtration tasks.

Even at a few tenths of a millimeter cake thickness filter fineness down to 1 µm can be achieved. The filter system is able to clean effectively very thin filter cake, which is problematically for conventional cake-forming filtration systems. One example is the filtration of boiler feed water in a power plant. Due to cake building, the Lenzing

OptiFil®-M separates even 1 micron particles. It polishes the clear water of a decarbonisation reactor, which is used for the softening of river water. The downstream ion exchangers require very high water quality, respectively impurity content lower than 1 mg/l.

Mann+Hummel

The modular Mann+Hummel Filter Cube improves air quality in places with high air pollution - such as traffic junctions or subways. The decentralized applicable technology is able to bind more than 80 percent of the NO_2 and fine dust contained in the ambient air sucked in. The core of the technology is a newly developed combi-filter, containing a filter layer that retains particulate matter. Due to the large surface area of the additional highly porous activated carbon media, NO_2 is adsorbed very effectively with particularly low pressure drop and energy consumption.

Electric vehicles play an important role in reducing local transport-related CO_2 emissions. Battery systems, E-

Mann+Hummel Filter Cube

motors, power electronics and fuel cell stacks must run inside a defined temperature range to achieve high efficiency and durability. Mann+Hummel has developed filtration solutions to keep cooling air, coolants and lubricants clean for enhanced system reliability and robustness, applying particle filtration, gas adsorption, and ion exchange technology. Clean air supply for fuel cells is essential especially in the HD segment – Mann+Hummel Cathode Air Filters efficiently adsorb critical gases, thus enabling robust operation and achieving system durability.

LUM GmbH

LUM GmbH was founded in 1994 by Prof Dr Lerche as an innovative corporation with headquarters in Berlin, Germany. LUM has an office and application lab in France and 3 subsidiaries, in USA, China, Japan. Scientific and measurement technology expertise has been obtained for decades in:

- Particle chaaracterization
- Analysis of suspensions and emulsions
- Determination of adhesivve and bonding strengths
- Quality assurance and process optimizationn.

ACA Systems Oy

The uniform filtration performance is an essential quality requirement of the filter media so that it can protect people, machines and environment. The filtration performance of the media is often measured as air permeability/pressure drop. So far, it has been possible to measure these important characteristics reliably only in laboratory environment. However, laboratory measurement is typically used only for quality control due to delay of the results and so it has not been used as a process control tool.

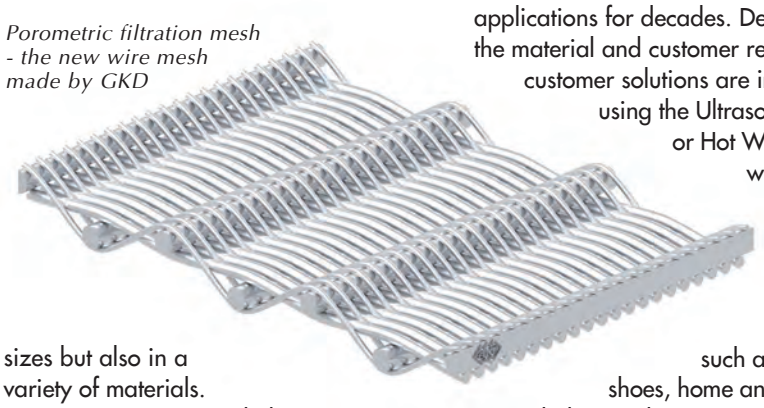
Now ACA Systems Oy from Finland has developed and introduced new online measurement device ACA Permi for measuring air permeability/pressure drop realtime in process.

This novel technology measures based on continuous air flow method directly from the moving web with very high correlation to various lab standards. On-line air permeability/ pressure drop analyser helps to see even small process changes and learn how they affect the filtration performance.

GKD

With the development of Porometric, GKD has created a woven filter medium that is not only highly accurate but that also out performs known media in terms of permeability and dirt holding capacity. In order to make Porometric's advantages available for as many liquid-solid separation processes as possible, GKD then adopted the new weaving pattern for as many pore sizes as possible. This has led to a new range of wire filtration meshes ranging in pore

size from 13 µm to 1000 µm. Backed by results from independent testing labs and customers that confirm high flow rates at low pressure, mechanical stability and excellent cleaning behaviour, Porometric has broken into the field of applied industrial filtration. GKD is proud to present these new members of the Porometric family at Filtech 2019. They are available not only in a range of pore sizes but also in a variety of materials.



Porometric filtration mesh - the new wire mesh made by GKD

Customer requirements led GKD to develop a hybrid version of Porometric, fusing stainless steel and high-tech polymer materials. Applications with seawater have resulted in the development of a highly corrosion-resistant Porometric variant which can be woven with openings as small as 25 µm.

GKDs new Trimetric filter media is made from sinter material, combining optimised dutch weaves and metal fibre nonwovens for hot gas filtration with temperature resistance of up to 600C.

The Trimetric media will be making its debut at Filtech in October and the company says its efficiency has been demonstrated in a study by the German Institute of Mechanical Process Engineering (IMVT). Adaptable for specific applications, the inherently stable filter elements can be used in all designs of standard dust filters and in bag filter systems with minimal adjustments to fittings.

As a sintered filter medium laminate, Trimetric is based on tested processes at GKD for producing the mesh laminate Gekuplate and the results of the IMVT study. The study showed that the combination of metal fibre nonwoven on the outflow side and optimized dutch weave on the inflow side is highly effective in terms of cleaning and filtration efficiency. The high dirt holding capacity of this combination guarantees a slow increase in pressure loss with a high level of separation efficiency.

Pfaff

The core competence of Pfaff Industriesysteme und Maschinen GmbH is the joining of flexible materials. The company not only masters industrial sewing applications, but has also been an innovation leader in textile welding applications for decades. Depending on the material and customer requirements, customer solutions are implemented using the Ultrasonic, Hot-Air or Hot Wedge welding methods. In addition to the classical industries such as 'clothing, shoes, home and car upholstery', the company has made a name for itself as a specialist supplier of production solutions for the filter industry. Whether it be filters for dry filtration (dust removal, air conditioning and ventilation technology) or for liquid filtration, such as pleating filters, tube filters, stocking filters, pocket filters, bag filters, etc., the articles must first be assembled. In close dialogue with the customer, Pfaff defines the right joining technology and implements this in the machine or production line.

Pfaff ultrasonic welding machine

With the brands Pfaff Industrial and KSL, the company has the necessary experience in process engineering, electrical engineering, automation technology and robotics to meet customer requirements for reliable, partly fully automatic solutions. A fully automatic production line for the manufacture of filter bags (with longitudinal seams) for an Asian customer is currently being manufactured in Kaiserslautern, Germany. At the heart of the system are the exchangeable hot-wedge welding and 3-thread chain-stitch sewing units. Depending on the application, these can be implemented in the manufacturing process in just a few minutes.

The raw material is unrolled, precisely formed and quickly and reliably fed to the sewing or welding unit. After joining, the 'tubes' are cut (filter length selectable via display) and automatically ejected. Optionally, the parts can be labelled using a printer. Depending on the material, the plant reaches a production speed of 10 m/min.

At the Filtech, Pfaff Industrial presents a new ultrasonic welding machine, a true world debut. In addition to regulating speed and welding power, the new Pfaff 8311 allows power to be measured and held constant during the welding process for the first time. Machine adjustment and handling is easier. The process becomes clearer, more reproducible and easier to understand. In short - the machine is raised to a new level. Another highlight of the machine is the trimming function. A cutting blade to the right of the weld seam can be switched on and off. These and other solutions will be presented at this year's Filtech in Hall 11.1, No. E1.

Sonderhoff

For the first time, Henkel and Sonderhoff are presenting their filter manufacturing products on a joint stand at Filtech 2019. Henkel offers the world's widest range

of adhesives and sealants as well as products for surface treatment. Sonderhoff, which has been part of Henkel AG since 2017, is a system provider for materials, machines and contract manufacturing. This means that users can benefit from effective customized solutions for the entire filter production system from a single source. The result is an improvement in solutions that raise efficiency in filter manufacturing as well as uprating the functions and quality of the filters themselves.

Manufacturers of liquid filtration systems in water, food and beverages industries face the challenge of having to continually raise the reliability and efficiency of their products. But they also need to cut the maintenance costs when cleaning filtration systems. Henkel has developed a two-component epoxy adhesive, Loctite EA 9452, in meeting these high requirements. This adhesive is characterized by very good acid and alkali resistance when filtering liquid substrates at pH2 to pH12. Above all, the product has a high temperature stability of up to 85°C. 'This allows the intervals between the cleaning cycles to be extended, reducing costs and raising production output,' says Frank Lenz, Business Development Manager Filtration for Europe at Henkel, explaining the efficiency benefits.

Sonderhoff reverse osmosis system

Henkel also offers Technomelt AS 5115, which isa solvent-/BHT-free hot melt adhesive based on ethyl vinyl acetate. The product is approved to VDI 6022 for use in ventilation and air conditioning systems and is also used for the bonding of clean room filters. Technomelt AS 5115 can be used up to 100°C, impressing with its excellent fungal and bacterial resistance that meets ISO 846. This reduces the effort required for cleaning and disinfecting the filter elements and apparatus.

Sealing specialist Sonderhoff, a manufacturer of two-component foam gaskets, adhesives and potting compounds as well as mixing and dosing systems, will be presenting the advantages of their foamed filter adhesive in the Fermadur range. This adhesive bonds the folded filter pack to the interior of the filter frame and is applied using a SMART-M dosing cell. Thanks to the foamed cell structure and the resulting lower density, this product achieves high efficiencies in filter production. The amount of adhesive per filter can be reduced by up to 50% thanks to the foamed cell structure. This saves both money and weight, while continuing to meet the requirements for high-quality filter bonding, says the company.

The joint booth operated by Henkel and Sonderhoff at Filtech is located in Hall 11.2, Stand L1.

Topas

In recent years, the AFC type filter media test systems of Topas GmbH evolved to an indispensable instrument for several industrial applications. The multifunctional and compact basic design, which synergises aerosol generation (monodisperse/polydisperse solid/droplet aerosols), aerosol conditioning (concentration, charge condition, classification) and

aerosol analyses (incl. automated sampling, data weighted by number/mass), enables the modification for customer-specific performance requirements. Especially for filter media and small filter elements, AFC type test systems serve globally for standardised characterisation, optimisation, development and quality assurance. It can be used for cleanable filter media (ISO 11057, VDI 3926) as well as filter media used for production of general air ventilation filters, engine air intake filters, and cabin air filters.

Furthermore a special QC setup is offered for production tes ting of vacuum cleaner HEPA filters (EN 1822-4 App. E). AFC type test systems are also operated in industry and research for the development and calibration of aerosol-analytical instruments (e.g. environmental sensors PM10, PM2.5). The standard channel configuration is based on a circular flow channel that offers face velocities in a range of 0.02 to 7 m/s. All AFC type test systems are equiped with a user-friendly control and test evaluation software.

eurolaser

eurolaser is one of the world's leading manufacturers of CO2 laser cutting systems for nonmetals. Large-scale laser systems are ideally suited for the cutting of filter material. The contactless process ensures constant cutting quality without tool wear. The table concept with vacuum exhaust reduces dust and keeps the material in place at the same time. In addition the thermal laser process ensures the cut edges are sealed during the cutting of synthetic textiles.

Subsequent processing is made much easier because the cut edges of the filters do not fray.

The handling of material from the roll is especially comfortable with eurolaser's own conveyor system combined with a feeding unit. At the Filtech, eurolaser presents its L-3200 with a table size of 1800 x 3200 mm. The machine offers additional tool slots so that laser and knife-tools can be used on the same machine for even more versatility in the processing of filter material.

With the latest version of the software suite LaserScout, the cutting of printed filter mats becomes even easier. The software module JOBIDENT is used for the fully automatic identification of different job files via a QR code on the material. This module is the key for entry into Industry 4.0. The nesting software additionally reduces the waste to a minimum.

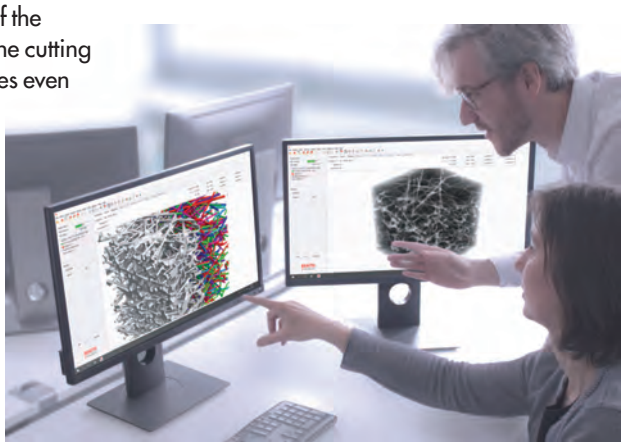
MATH2MARKET

When developing new filter media, µCT scans are a powerful tool to gain deep insights and ideas for innovation and quality control. However, the prerequisite for this is that the relevant information conveyed by the images is correctly extracted, interpreted and quantified.

'Our simulation software GeoDict® provides a deep quantitative understanding of the information contained in CT images and helps to overcome the challenges of modern filter media development,' says Andreas Wiegmann, the CEO of Math2Market, 'We are proud to present FiberFind-AI, a new module available for the first time in the GeoDict®-2019 software, at Filtech'.

The FiberFind AI module applies a neural network previously trained with GeoDict on µCT-scans to first identify all fibers in the filter medium individually. Fiber properties such as fiber diameter and length distribution, fiber orientation and fiber curvature are then quantified in detail.

In the training phase, the neural network is trained on microstructures of nonwoven that were modelled with the



fiber generator module of GeoDict®. There fibers (and also binder) are already labelled on the artificial 3D-scans, since this information about fiber and binders is known during the generation process. In the usage phase after the training, the neural network also performs reliably on 3D-scans of real nonwoven scanned with µCT (or FIB-SEM).

The use of the neural network enables high-precision simulations and analysis of fibers and binder distribution in nonwoven that occur during production. Gaining such insights through experimental research and development without 3D imaging and subsequent analysis is a lengthy and painstaking - or even unfeasible task.

As Andreas Wiegmann remarks: 'This is just the beginning. Starting now, with FiberFind-AI of our GeoDict® software, nonwoven media manufacturers have the opportunity to design and develop optimized products while simultaneously reducing the number of prototypes and saving experimental costs and, above all, time'.

Pfeffer Filtertechnik

Pfeffer Filtertechnik, specialist in solid fluid separation and filtration, provides a vast range of automatic backflush filters

and cyclonic separators for the water treatment sector. Their systems are especially suited for water that contains organics, bacterial load and fibrous matter. Great as prefilter for membrane systems. Pfeffer Filtertechnik, it´s all about clean fluids!

IREMA-Filter

For over 40 years IREMA-Filter is known as one of the most innovative synthetic media manufacturers in the filter media industry distributing its filter products worldwide. They produce synthetic filter media out of polypropylene, a small part out of polyester, mainly for cabin air, HVAC and other industry applications. IREMA´s unique 3D-media design features excellent filtration characteristics in the final product. Their roll goods are either developed upon customer requirements or designed to meet filtration standards like ISO 16890, EN779 or ASHRAE 52.2 in finished filters.

Beyond that IREMA-Filter supplies MiniPleats (pleat packs) for the easy manufacture of finished filters. Their colorful MiniPleats are well known in the filtration market and do excel in filters deployed in HVAC or similar applications where synthetic filters are the better choice compared to glass fiber filters. They provide technical information for MiniPleat products tested in a standard filter size. By developing their series Micro 2000, Nano 3000 and Eco 4000 over the years they show how focused they are to meet different standards and the often changing demands of the industry.

As a finished filter they market EcoTitan 3V-cell certified according to ISO 16890, a compact filter excelling in robustness, filter lifetime and energy efficiency. IREMA-Filter is strongly devoted to R&D work with regard to customized and new energy efficient filter products in OEM-quality. With their expertise and team's capabilities they

constantly accept new challenges and create solutions for customers.

They help customers to choose the best option for their individual needs: latest technology, cost effectiveness and energy savings. IREMA-Filter has implemented and maintains a Quality Management System according to DIN EN ISO 9001:2008 as well as an Energy Management System according to DIN EN ISO 50001:2011.

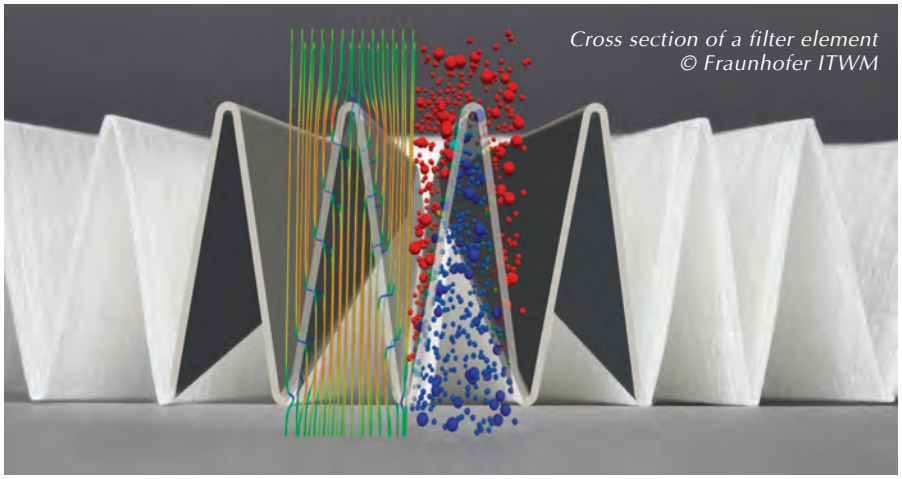
For more information please visit them at the Filtech, Hall 11.1, Booth B9. You can also look up on their website www.irema.de or contact via sales@irema.de for any questions you may have.

Fraunhofer ITWM

The design of filters is a challenging task and in many cases, the development cycles required to improve prototypes can become time-consuming and costly. When optimizing a filter element for instance, aspects like the geometry of the housing and material properties of the filter media such as their filtration efficiency, flow resistivity and mechanical strength have to be taken into account.

In order to use digitalization for the acceleration of the development, problem-adapted simulation tools are required. Based on more than 20 years of experience and active research in the field, Fraunhofer ITWM offers simulation tools ranging from the production of filter materials to the final filter element.

FIDYST simulates the production process of nonwovens (spun-bound, meltblown, airlay), allowing to study the influence of process parameters on the resulting material. Based on the microstructure of a nonwoven (or a composite in general), the software FeelMath computes the mechanical properties of the material. FiltEST is a simulation toolbox for the assessment of efficiency, pressure drop evolution and the lifetime of filter elements. The software PoreChem simulates flow and surface reactions in porous media and allows for the evaluation of purification processes.



Cross section of a filter element
© Fraunhofer ITWM

Johns Manville

As a leading manufacturer of high-quality filtration media, Johns Manville offers a broad range of glass fibers and nonwovens made of glass and synthetic fibers.

Their product portfolio includes: Glass fiber sliver and glass microfibers, spunbonds, meltblowns, glass fiber nonwovens (airlaid, wetlaid, drylaid), and composites.

Their top of the line filtration media are used in different applications, including automotive, air pollution control, HVAC, coolant and lubricant purification, food and beverage, pharmaceutical, mist elimination and lead-acid batteries.

Polyester spunbond for industrial air pollution control applications

This cleanable filter media, dust class M, offers excellent mechanical strength and pleatability - a product being produced at the new JM BiCo spunbond line in Berlin.

Micro glass air media for HVAC

A purely mechanical and highly efficient filter media made from 100% biosoluble glass fibers. The inherent structure of this media leads to a beneficial combination of a low pressure drop and a very high dust holding capacity. These filter materials are used for filters ranging from ePM10 50% to ePM1 85% according to ISO 16890 and MERV 7 to MERV 15 according to ASHRAE 52.2.

Biosoluble glass micro fibers for HEPA/ULPA, ASHRAE air filtration and battery separators

The very fine diameter of these micro fibers enables high-filtration efficiency. The fibers are easily dispersible,

providing improved density and tensile strength within filter papers.

PP meltblown for food & beverages

JM's PP meltblown provides precision calendering, resulting in more consistent filtration properties. A third party certification is available for high-purity filtration applications.

Glass fiber sliver and glass needle mat for mist elimination

The C-glass fibers offer chemical resistance and excellent drainage properties, making these products an excellent choice for a wide range of industry applications.

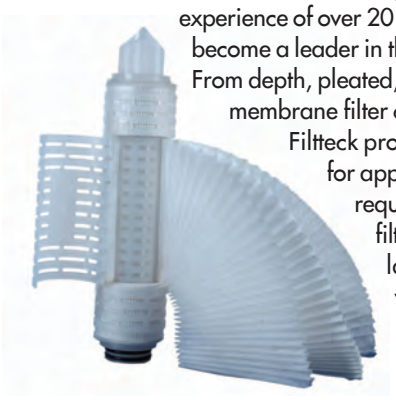
Their glass fiber needle mat as a pre-filter media provides high oil-holding capacity, excellent drainage capability, chemical resistance and high temperature resistance.

Beyond the materials listed above, JM offers glass fiber nonwovens for lead acid batteries.

Filtteck

Filtteck Co. is the leading filter cartridge manufacturer in Taiwan that dedicates itself particularly to research

and development of filter industry since 1998. Filtteck has the technology and experience of over 20 years to become a leader in the filter. From depth, pleated, to membrane filter cartridges. Filtteck products are for applications requiring fine filtration of large volumes of liquids. Areas of application are in industrial process water, opto-electronics, biomedical, pharmaceutical, chemical, biochemical, food and beverages and water treatment industries.



Sandler

Sandler AG will showcase a wide range of highly efficient synthetic filter media. Efficient pocket filter media and pleatable nonwovens for heating, ventilation and air-conditioning achieve high efficiency throughout their entire operating lives. Nonwovens for cabin air and engine air filters help improve the indoor air quality in our vehicles. Fuel filter media protect the engine and contribute to efficient combustion. Synthetic vacuum cleaner bags reliably trap dirt particles and dust and foster a higher suction power.

The new international testing standard ISO 16890 is changing the filtration market and product development regarding both filtration performance and energy efficiency. Sandler filter media address these priorities. With a low pressure drop they reduce energy consumption during the operation of the filtration plant. Progressively structured pocket filter media contain fine fibres of <1 µm and attain high efficiency as well as high dust holding capacity. The latest Sandler product line enAIRsave® combines excellent filtration performance with energy efficiency and offers ideal products for all efficiency ranges according to ISO 16890. As part of the accompanying conference, a lecture by Sandler will focus on the advantages of these new pocket filter media with regard to the provisions of ISO 16890.

Furthermore, Sandler nonwovens are resistant to temperature and moisture-durable synthetic media featuring optimum performance throughout the filter's operating life. Pleatable Sandler filtration nonwovens are also easily processable in all common pleating processes. Their fibre structure supports accurate pleating; the utilised polymers render the pleats stable and resistant to mechanical influences.

A new booth design highlights the aspects affecting our well-being in public spaces and informs visitors on the versatile areas of application for Sandler filter media.

Sandler Team is looking forward to welcoming you at booth C1

Textest

Textest is a Swiss company that has been manufacturing sophisticated, sturdy, and user-friendly testing instruments with unsurpassable measuring accuracy since 1969. Applications are mainly - but not exclusively - technical textiles.

Textest's main focus lies on instruments for measuring the Air Permeability and Pressure Drop. Therefore, the filtration industry is a very important market. A complete range of Air Permeability Testers for laboratory and mobile use, as well as for on-line testing, is available. At this year's Filtech, the FX 3300 LabAir IV for laboratory applications, the FX 3340 MinAir, a compact and relatively inexpensive alternative to the laboratory instrument, the FX 3345 FlexAir for testing of contaminated materials, the FX 3360 PortAir for measuring air permeability profiles during production, and the FX 3500 CombiScan for continuous determination of the air permeability and thickness in the production line will be on display in stand no. D8 in hall no. 11.1.

Textest is accredited to ISO/IEC 17025:2017 and provides calibrations and after-sales service from various global service points. The instruments are supplied with a calibration certificate and the measuring accuracy can be verified at any time by the operator.

Textest FX 3300 LabAir IV

Haver & Boecker

Where conventional filter cloths have reached their limits, MINIMESH® RPD HIFLO-S opens up new dimensions for filtration. Using new weaving technology developed by Haver & Boecker, a three-dimensional pore geometry is created that makes industrial filtration processes more efficient, faster and more economical than ever previously possible.

The open surface over an area is significantly increased. The medium's flow-through rate can be doubled when compared to conventional filter cloth having the same pore size. In addition, the flow conditions are optimised and turbulence around the filter cloth is effectively avoided.

The pore size within a batch can be calibrated as desired from 5 µm to 40 µm. The new filter cloth can be manufactured from standard diameter wires. This has a positive effect on cost. Moreover it is now possible to weave special materials such as Avesta, Hastelloy, Inconel or titanium in the small pore size range. Thus for the first time RPD HIFLO-S offers a corrosion and temperature resistant filter cloth with pore sizes below 40 µm. The depth structure of

RPD HIFLO-S offers a high separation effect without rapid blinding. Dirt holding capacity and cleaning capability have proven to be excellent.

smartMELAMINE

smartMELAMINE® is a nonwoven made out of melamine. It belongs to the class of high-performance materials and it does not burn, does not shrink and does not melt. It remains stable even at higher temperatures of up to 220-240°C of constant exposure and is UV-resistant. smartMELAMINE is an excellent thermal and acoustic insulator and is also well suited for filtration due to the fine fibers and its chemical resistance. Due to the melt-blown process the achieved fiber diameter can be as low as 1 - 2 µm or even finer, reaching filter classes up to F9 or potentially higher.

Having similar properties to aramid fibers, but significantly finer diameter, smartMELAMINE is well suitable for hot-gas filtration and has shown a significant increase in the fractional collection efficiency in a composite with aramid fibers.

smartMELAMINE nonwoven can also be cut into short-cut fibers, which can then be used for the production of filters for liquid filtration.

Hifyber

Due to increased energy prices, and/or the requirement to reduce CO2 emissions, the energy consumption of filters is becoming very important in the

selection of filter media. To meet this ever increasing need, Hifyber introduced high performance HVAC nanofiber media; STP-4720 series, which represents a new level of high efficiency, low energy consumption. Nanofiber filters have a great potential for application in HVAC systems and air cleaners, as they can reduce particle concentrations in buildings while consuming less energy because of their relatively low air resistance.

The initial pressure drop obtained with HF-STP-4720-09 coded media is almost half (72 Pa) (according to EN779: 2012) of glass fiber type filter along with energy consumption of 1166 kWh according to Eurovent 4/21 which is rated as A+ class. Besides, according to ISO 16890, the first pressure drop was found to be 82 Pa and dust holding capacity at 200Pa was 316 grams. Another advantage of the STP-4720 series is its exceptional durability, in contrast to the delicate structures that restrict the use of nanofiber media in many commercial applications. STP-4720 series nanofiber HVAC media will open up a new approach to HVAC medias in means of efficiency, light weight, durability, long life time and environmental friendly construction.

Colquímica

It is a Portuguese industrial group dedicated for over 65 years to development, production and marketing of adhesives for industrial applications.

Their adhesives are part of people's daily lives, included in a wide range of products, such as: mattresses, packaging, food and personal hygiene products, filters, cars and many more.

They have built and consolidated a high-profile position in the international hot melt adhesive market.

Their core business is hot melt adhesives, products made with synthetic raw materials available on the market in several solid formats. These adhesives are applied melted, at temperatures that vary between 120°C and 180°C, joining two substrates in automated industrial processes.

At Colquímica Adhesives, they develop specific adhesives for application in different phases of filter production, such as pleating, bag sealing and fixation of filters to their enclosing structures.

Represented by the Kmelt Technology brand, their Hot Melt adhesives comprise the following main characteristics: viscosity optimized for the intended use; good adhesion to nonwoven fabrics; application at low temperatures; good flexibility; well-balanced open times; white colour.

They have two production units in Portugal and one in Poland.

The strategic location of their factories as well as their installed production capacity, allow them to fulfil orders in short delivery times and in many different locations.

Bokela

Pigments are finest grained products which are used in a wide field of applications. Their filtration characteristics differ in a wide range and due to the small particle sizes a high-performing separation technology is needed especially for applications that not only require solids thickening but also solids washing. Bokela's BoCross Dynamic Filter - a dynamic crossflow filter - is able to meet these challenges. Therefore, a producer of colorants and color pigments decided in favour of the BoCross Dynamic Filter for the filtration of a red color pigment.

The fine grained organic pigment has to be concentrated and washed out from salt. A considerable number of filter presses of 60 m² filter area each is operated for this task. They cause an expensive and complex process, since washing must be carried out as a two-stage process with intermediate re-suspending. However, increased requirements for product purity can not be met. Now the BoCross Dynamic Filter is a future-oriented solution for this

application. One 8 m^2 BoCross Dynamic Filter is able to replace one 60 m^2 filter press. The most important aspect is that this technology is capable of meeting growing product purity requirements in the future.

Low & Bonar

Low & Bonar proudly presents its latest innovation Colback Plus - a pleatable support medium with built-in

filtration capability. The combination of functionalities into one product reduces the number of layers that would normally be needed in a filter system. Thanks to its unique fine fiber technology Colback Plus is free of glue.

Colback as a support medium is recognized in the filtration market for its high stiffness, high air permeability and high thermal stability. Now engineers at Low & Bonar have extended the capabilities of Colback by adding a mechanically bonded micro fiber layer, delivering a highly permeable support and filter layer 'in one'. The bonding technology reduces inefficiencies caused by the use of glue or point bonding, like VOC's or reduced pressure drop. The new product demonstrates amazingly high and stable filtration efficiency levels combined with high dust loading capacity. The micro fiber layer is very uniform predicting constant properties across the web. The stiff Colback allows for fast pleating and the formation of sharp and stable pleats for each single filter.

Colback Plus is especially suitable for cabin air, room air and HVAC filters, low to medium efficiency levels.

Mantec Filtration

Mantec's Star-Sep™ ceramic membrane filter has been specifically developed for efficient crossflow filtration. The filter channels' unique 'star' form increases the filtration area and induces turbulence at lower crossflow velocities. Not only does this lower the volume compared with a circular channel of the same diameter, but also results in a reduction of the pumping energy requirement. The cost effectiveness of the process is therefore substantially improved.

With a constant crossflow velocity, it is beneficial to design the filter channels with maximum circumference (or perimeter), giving rise to a greater membrane area. At the same time, it is important that the filter channels are designed with a minimum cross-sectional area in order to reduce the retentate flow required to maintain this constant velocity.

The design of the Star-Sep™ ceramic membrane filter incorporates both of these features, resulting in a 20% increase in filtration area and a 30% reduction in cross sectional area (and hence volumetric flow) when compared with a circular channel of the same diameter.

3-P Instruments

They are specialists for analytical instruments, contract analyses and method developments for comprehensive characterization of dispersions, powders and porous solids, including pore structure of filter materials and membranes, pore size distribution, porosity, permeability, particle size and shape, BET surface area, density, zeta potential and stability of original emulsions and suspensions, drying characteristics of coatings, water vapour sorption and many more. They have exclusive agency for the manufacturers : Porous Materials Inc. (PMI), Bettersize, Altamira, Dispersion Technology and Formulaction.

At Filtech booth they will have the PMI iPore Porometer for Capillary Flow Porometry to measure the characteristics of porous structures (through pores). The Porometer fully automatically determines the mean pore size, pore size distribution, bubble point (largest pore), pressure hold test, gas permeability and cumulative filter flow. The measurements are compliant with international standards (ASTM 316 and others). The iPore Porometer is able to measure various sample geometries such like sheets, rods, tubes, hollow fibres, cartridges, powders, etc.

The method of capillary flow porometry is well known: A non-toxic liquid is allowed to spontaneously fill the pores in the sample and a non-reacting gas is allowed to displace the liquid from pores by increasing the gas pressure. First, the larger pores will get emptied, as the pressure increases more and more smaller pores are progressively emptied. The pressure and flow rate of gas through the emptied pores provides the through pore distribution and the first detectable flow pressure defines the so-called bubble point, which is related to the maximum pore size in a sample.

Visit them at the Filtech booth S12 (Floor 11.2) to have a hands-on experience and talk to their product experts.

PMI iPore Porometer

JCEM

JCEM's position as the global leader in Pleating Systems is further solidified by its continued commitment to the highest quality and by expanded product offerings, such as:

- CNC Mini-Pleat and Combination lines for Glass & Full

Synthetic Pleating with Glue Bead separation

- P6 'Power Pleater' offering extreme pleat compression for the heaviest wire mesh or

Stainless-Steel pleating applications, from 3 mm - 300 mm.

- New High-Speed P7 CNC Blade Pleater for speeds up to 400 pleats/ minute continuous duty.
- Complete Cabin Air Production lines in combination with High-Speed P7 pleating machine for the world's fastest Blade Pleating/Cabin Air production line (incl. On-the-fly splicing and web accumulation)
- Expanded Peripherals: Servo-Driven Unwind systems for the ultimate in speed and precision control, Splice Systems, Integrated Web Alignment, Media buffering for on-the-fly splicing, Inline & Offline Slitting systems, Perforation, Gluing & Pleat Pitching systems, Aluminum Separator filter automation, Inline Post-Pleat Cutting, Servo or Pneumatic Cross Cutting in both Shear & Crush Cut.

BMP

As a truly Global company, BMP has the capability to provide media conversion services such as pleating, die-cutting, slitting and laminating operations across the breadth of the BMP Manufacturing Division. This significant investment into their range of converting equipment represents BMP's dedication to providing high-quality automated processes designed with cost consciousness in mind.

BMP filtration assemblies can be converted through the processes of clipping, ultrasonic welding, and end-cap moulding depending on the specification provided to them by customers. The final assembly endures in-house quality validation via a series of performance testing prior to release, such as air permeability testing, efficiency testing (liquid), HEPA indication, SEM testing and FTIR tests to ensure that BMP supply a product to be trusted every time.

BMP Asia Industries (Shenzhen), is a major supplier to the Automatic Transmission Filter (ATF) market, with product development capabilities and manufacturing expertise to produce a range of filters to support customers in the East Asia Automotive market.

Meanwhile BMP Technologies Malaysia, is a key vendor to the vacuum cleaner and air purifier markets, having engineering resources, test equipment and production knowledge to supply a series of filters to clients in South East Asia.

BMP is the core supplier for ATF market with full product range to support Automotive Industry.

- Standard efficiency filter media grades (lower pressure drop)
- High-efficiency filter media grades (reduced pressure drop)
- Bi-component media (laminated and heat bonded)
- Pleatable media (nonwoven, woven and extruded)
- Woven and nonwoven PET screens (support structures and absolute filtration)
- Metal screens (support structure and absolute filtration).

CFF

Organic filter aids - highly effective, environmentally friendly and sustainable

As an internationally operating company they cooperate with partners and distributors all over the world. CFF products find successful application in many different filtration fields.

Their organic filter aids may be characterised by the following advantages: low rates of consumption, longer filtration cycles, protection of the filter equipment, small volume of waste, environmental compatibility and sustainability, as well as being safe to handle.

All DIACEL® grades can be used in common pre-coat filtration system. The raw materials of their DIACEL filter aids are highly pure organic celluloses. In addition to filtration applications in the chemical, metalworking and food industry, they are also recommended to sensitive areas such as the pharmaceutical industry.

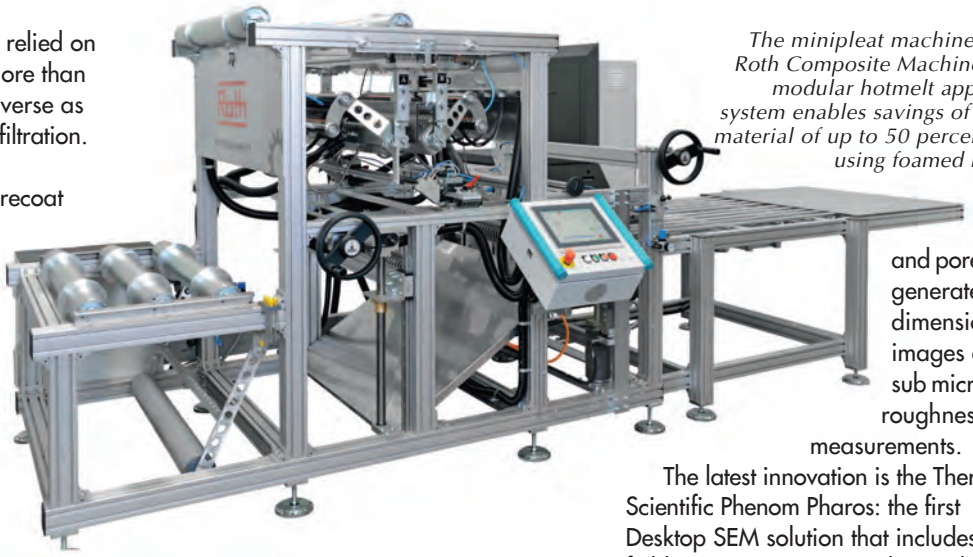
DIACEL®corncob products are gained from the corn plant, they are e.g. successfully used in the filtration of cooling lubricant and chemical solutions. DIACEL®basic is a product group for use in solid-liquid filtration and sludge and wasterwater treatment processes. The raw materials of DIACEL®basic products are untreated woods.

Being your flexible and competent partner it is their duty to analyse your filtration process and to provide solutions for an effective precoat filtration. Complimenting their high-purity cellulose products, they also provide filter aids from other natural fibres. All of their products are biodegradable with the great advantage of optimised sustainability and environmental compatibility, especially in the context of disposal of filter sludge and recovery of precious material.

Their production process complies with the DIN EN ISO 22000 quality management system for food safety.

Their customers who are active in

BMP filter products



The minipleat machine MPS of Roth Composite Machinery with modular hotmelt application system enables savings of hotmelt material of up to 50 percent when using foamed hotmelt.

many different industries, have relied on trust and constant quality for more than 40 years, in applications as diverse as food, chemical and cooling oil filtration.

Core Competencies are :

- Sustainable filter aids for precoat filtration
- Guidance concerning process optimization and cost reduction
- Consultation in regards to disposal options
- Constant product quality.

Stockmeier Urethanes

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

They 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.

One of their leading edge, globally available technology will reduce cost, weight and environmental Impact. Improve effiency both in filtration and throughout ones manufacturing process. Consistently deliver quality, reliability and assurance.

Quality Awareness

Filters are used to protect our health, the environment, and to extend the longevity of products. Any filter is only as effective as its components, including adhesive, sealants, and elastomers. Stockmeier Urethanes is acutely aware of their responsibility to deliver the highest quality products so that each filter made exceeds performance requirements.

Roth

Roth Composite Machinery from Burgwald, Germany, will be exhibiting at the Filtech in hall 11.1, booth B5. The manufacturer offers a broad range of mechanically controlled and servo-driven knife pleating machines and rotary pleating equipment. The machines are available worldwide.

For the manufacture of filters being used wherever the air has to be particularly clean, Roth offers minipleat systems. The filters having been manufactured by this are suitable for ventilation systems in residential and public buildings, in hospitals and for vacuum cleaners, gas masks or exhaust systems. The minipleat system MPS takes endlessly folded material from a pleating machine, stretches it out and is coating it to the left and the right side by using so-called hotmelt beads. These are beads of hotmelt materials achieving a permanent bonding when cooling. Being raised to a bellow, the hotmelt beads come into contact and stick together. So, the sensitive filter material is protected and stabilized.

Roth minipleat system can apply either solid or foamed hotmelt beads. The use of foamed beads is realizing savings of up to 50 percent hotmelt due to the small air bubbles being integrated in the hotmelt. A later retrofit of the machines being supplied can be carried out easily and cost-effectively.

Thermo Fisher Scientific

The Thermo Scientific™ Phenom Desktop SEMs are the perfect tools when it comes to evaluating samples in a short span of time due to the rapid and non-destructive sample preparation and load mechanism. Specially designed software applications enables users to extract maximum information from the images. With applications such as ParticleMetric, PoroMetric, FiberMetric or 3DRoughness Reconstruction, you can easily investigate the morphology and particle size data, size and distribution of fibers, particles and pores, or generate three-dimensional images and sub micrometer roughness measurements.

The latest innovation is the Thermo Scientific Phenom Pharos: the first Desktop SEM solution that includes a field emission gun (FEG) that makes crisp, high-brightness images, with a resolution of less than 2.5 nanometer. They now offer academic and industrial customers a complete portfolio of scanning electron microscopes (SEMs), ranging from desktop instruments to high-end floor models.

Testori

Testori Group is a vertically integrated market leader with over 110 years of experience in the technical textiles field, specifically applied to industrial filtration for both production

Seam taped filter bag

Twin Cloth for filter press

processes and environmental protection installations. Operations cover the entire value chain, from processing the raw materials to the production of finished items for gas and liquid filtration (fabrics, cloths, felts, bags), as well as pre & post sales technical consultancy.

BRANOfilter

BRANOfilter have been producing top filter products made of nonwoven & paper for many decades. Its manufacturing facilities are located in Germany (Dietenhofen), Czech Republic (Hlinsko) and China (Ningbo).

BRANOfilter panelfilter assortment

Their business units are :

- BRANOvac (dust bags for industry, household and special applications)
- BRANOhvac (filters for heating-ventilation-air-conditioning)
- BRANOscience (workshops, training, research & development).

Especially with the business unit BRANOhvac, they offer a large range of filter systems for air conditioning facilities. Their product focus is on filter mats, panel filters and Z-liners in different filter classes, frame types (rectangular or round) and measurements.

BRANOfilter as a medium-sized company is extremely flexible to produce filters in different lot sizes within shortest lead time.

BinNova

BinNova are in novel metallic micro fibers and sheet materials.

Metallic micro fibers offer new possibilities in filtration and other applications due to their unique properties. High mechanical, chemical and thermal resistance enable applications in harsh environments. The high electrical conductivity helps avoiding electrostatic charge build-up. With fiber diameters below 10 µm the surface properties lead to new catalytic and bacteriostatic applications due to the high surface-to-volume ratio. Electrochemical applications like hydrogen production or carbon dioxide reduction are the latest examples.

BinNova's process is able to produce fibers from a broad range of metals and alloys such as Ag, Al, Cu, Fe-based alloys and many more to fulfill a wide range of application requirements.

The fibers are formed into very homogeneous wet-laid sheets with defined porosity and basis weight. It will be possible to make rolls of 100% metallic sheets with high durability and mechanical stability without usage of any binders or other 'contaminants'. Layers of fibers with different diameters can be combined to obtain gradient density porous structures.

BinNova Microfiltration is well-known for its high-performance and economic glass fiber filter. These media are used by customers in the hydraulic and automotive industry, industrial equipment suppliers as well as in the HVAC and Gas Turbine business. These media are free from phenolic binders providing environmental and safe solutions.

BinNova already offers semi-synthetic media under the brand names SmoothAIR™ and ToughAIR™ which are appreciated for their trouble-free processing, the smooth flow at low pressure drop, their high reliability and their improved tensile strength.

Now BinNova goes one step further: With fully synthetic media BinNova further increases the mechanical strength, the resistance against vibrations and pulsations and thus prolong the lifetime of air filtration media. BinNova's engagement and innovation is dedicated to the reduction of energy and raw material consumption.

For liquid filtration, their high-capacity fully synthetic media enter new areas of application like engine oil filtration. BinNova filter media are characterized by efficient removal of abrasive particles, superior chemical resistance against modern engine oils and green fuel, high dust holding capacity.

Sintex

Sintex has long-term experience in textile manufacturing from R&D, Design, Technology, Production, Final products Testing/QC and Commercial Applications.

Besides common candle microfiber filters, they have developed candle nanofiber filters for extremely fine filtration of air and liquids.

Permeability : 5-20, 20-100, 100-300 nanometer

The nanoEKOFIL® candle filters has basic technical parameters :

- Composition : polypropylene, polyester, polyamide, polyurethane
- Length: standard 125, 250 mm
- Internal diameter: 28 mm
- Outer diameter : 61 mm
- Custom made special size/ specification also possible.

Suitable for various applications, including Food processing industry, Chemical industry, Pharmaceutical and Cosmetics industry, Health care, Environment, etc.

Porometer NV

Poroperm proudly announce that after a successful collaboration with, among others, the European Membrane Institute (EMI), the first POROPERM™ , has been placed in the market. The results are looking very promising.

The Poroperm™ is a vapour/ gas porometer (permporometer), which is

capable of measuring the pore size distribution between 0.5 nm up to - 60 mm. These small pores can be measured with a maximum pressure of only 100 mbar, what will avoid broken pore structures due to high pressures.

The Poroperm™ is the perfect system to perform research on nanofiltration membranes or other very tight materials.

Trislot

Trislot is a manufacturer of stainless steel wedge wire screens and slot tubes. These filter elements are made of V-

shaped wires referred to as profiles and other shaped wires referred to as support rods. The profiles are accurately spaced and welded onto the support rods.

Wedge wire has several advantages that no other filter medium offers when it comes down to liquid/solid filtration :

Trislot prides itself in delivering high precision products throughout the world. Their engineering team with more than 30 years of experience, designs the product that suits the customer's need. Their extended sales team ensures a personal and excellent service experience. With production units in Belgium, China and USA, they can serve customers worldwide.

Depending on your application, Trislot can offer a wide range of materials, ranging from the common 316L to more exotic materials such as Hastelloy, Super Duplex (with Norsok certification), Uranus B6, etc.

Ahlstrom-Munksjö

Extia® is a new unique, ingredient technology platform product specifically designed for Industrial Filtration markets. It has the ability to extend filtration lifetime, whilst effectively removing coarse particulates at a lower level of pressure drop. Extia® is a 100% synthetic, highly durable, pulse cleanable filter media, designed to last longer in all operating conditions.

Key Benefits for Extia® include:

- Extends filtration lifetime by over 40% - helping to extend the operational duration before needing to change the filters
- Effectively removes coarse particulates, over total filter life, at a lower level of pressure drop - delivering better reduction of industrial emissions and energy saving
- Easier to convert into a filter - delivering faster knife pleating, plus offering suitability for rotary pleating.

Extia® is positioned for dust filtration cartridge applications, helping to protect people and the environment.

Visit them at Filtech for further news on the Extia® portfolio expansion; including Flame Retardant, Conductive and High Efficiency media.

Entec International

Environment and purification have gone hand-in-hand at Entec International for many years. As specialist in the field of Environmental Technology, they are your partner for products such as: odour filters and odour filter media, UV and ionisation, hyperboloid-/dynamic mixers, static mixers, submersible mixers, aeration, recirculation and pumps.

Their own R&D department has almost 50 years of in-field experience ensures the highest quality in all their product ranges. From standard to customer specific and customization; Entec International is the solution.

Entec International will introduce the High-end filter media: PAARS® Excellent in hall 11.2, stand No. S35

High-end filter media: PAARS Excellent. The new standard for the oxidation of gaseous contaminants at the highest level.

Main target: Gaseous contaminants oxidation. Reducing bad odour from wastewater treatment plants, refineries, chemical plants, airports and much more. PAARS is designed to permanently remove a broad spectrum of harmful gases from the air:

- Hydrogensulphide(H_2S)
- Sulphur dioxide (SO_2)
- Sulphurtrioxide(SO_3)
- Formaldehyde (CH_2O)
- Oxides of nitrogen (NOX)
- Chlorine (Cl)
- Ethylene (C_2H_4)
- Light VOCs.

Veco BV

Filtration sieves vary across applications/industries and have significant influence on efficiency of production process and quality of final products. Veco's high precision filtration screens are becoming the preferred choice for various industries due to improved separation performance compared to traditional alternatives such as wire mesh and wedge wire.

As the world leader of micro precision engineering and filtration screens, Veco has been supplying the widest range of precision filtration and separation media tailored to various processing and manufacturing industries, including Beer Industry, Food Processing, Water Treatment, Water Intake, Pharmaceutical Industry, Mineral Processing, Waste Processing, Paper & Pulp, Architecture, Petrochemical Industry, among others.

With 'easy release' design of the openings as well as the ultra-smooth screen surface, there's considerably less clogging, which results in higher throughput, easier cleaning, and longer up-time. Which results in lower costs with great performance . Moreover, Veco's filtration sieves have high open area up to 25% with highly rigid and accurate holes that don't deform like the traditional mseshes; dimensions can be down to 2 microns with very tight tolerances. ATT