



FILTECH

October 22 – 24, 2019
Cologne – Germany

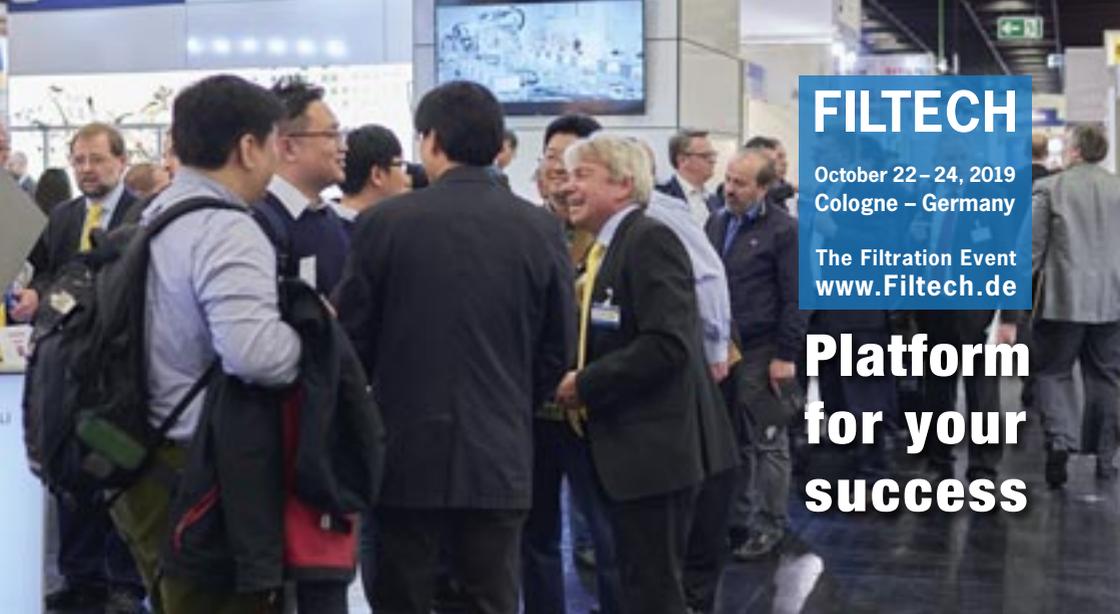
The Filtration Event

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Targeted Solutions for all Filtration Tasks

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Innovations+++ Highlights+++ Trends



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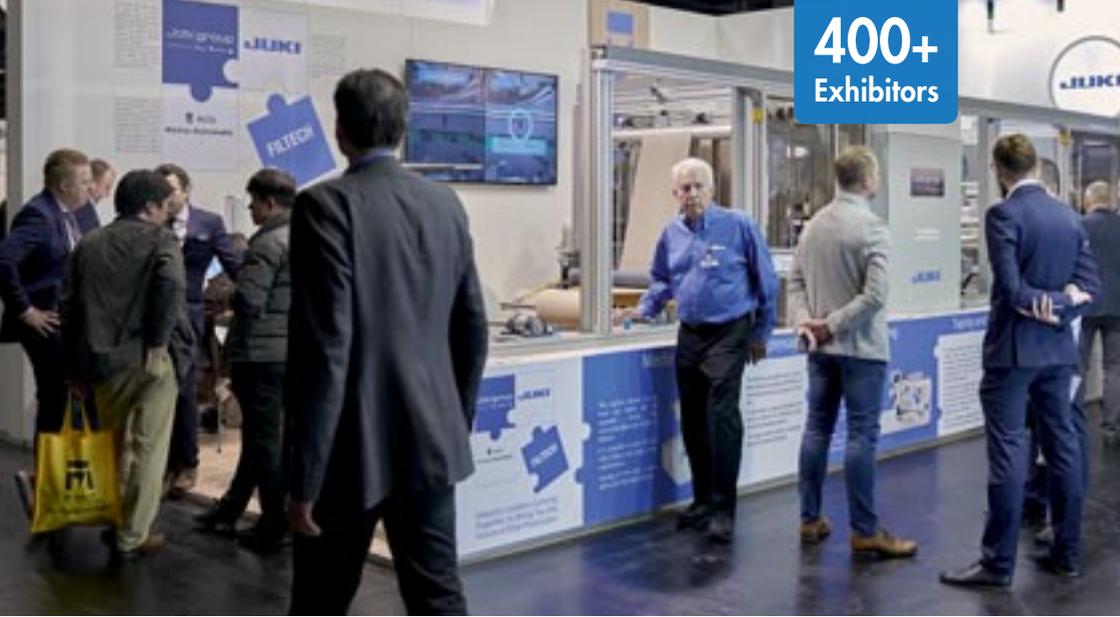
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success**



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400+
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Providing all industries with targeted filtration & separation solutions

With the FILTECH taking place from 22.-24. October 2019 the City of Cologne in Germany will again turn into the place to be for all those involved with filtration and separation and adjacent sectors.

The largest filtration show world-wide will take place at the new venue KoelnMesse Cologne, where 400+ companies will present their cutting-edge products and innovations for the chemical industry, as food & beverage, life science, minerals processing, pulp & paper, waste management, water treatment, environmental engineering petrochemicals 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.

Solutions for Outdoor Air Filtration

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 NO₂ 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, NO₂ is adsorbed very effectively with particularly low pressure drop and energy consumption.



e-Mobility solutions

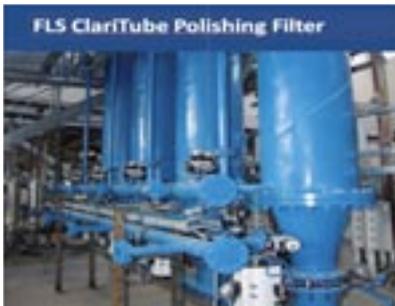
Electric vehicles play an important role in reducing local transport-related CO₂ emissions. Battery systems, E-motors, power electronics and fuel cell stacks must run inside a defined temperature range to achieve high efficiency and durability. MANN+HUMMEL has developed filtration solutions to keep cooling 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.

ClariTube /Metallic filter media with automatic filter cleaning

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 OptiFil®-M - Automatic backwash filter for cake-forming filtration

Lenzing Technik will present the newly developed backwash filter Lenzing OptiFil®-M at FILTECH 2019 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 1mg/l.



Compact hybrid systems for disinfection of waste water and elimination of trace substances

Trace substances of anthropogenic origin pose new challenges for operators of water treatment plants. Previous technological solutions are very cost-intensive and a complete and residue-free degradation of such substances is usually not possible. In cooperation with partners, Fraunhofer IKTS is currently developing compact, robust and self-cleaning waste water treatment systems that can be used both at the "point-of-use" as the last treatment step before consumption or at the "point-of-emission" for the treatment of polluted partial streams. For this purpose, ceramic microfiltration flat membranes are extended with a photocatalysis zone based on titanium dioxide and the filtrate is irradiated with energy-efficient UV-A LEDs. This allows particles to be separated, waste water to be disinfected and organic trace substances such as pharmaceuticals, odors and flavor formers to be completely degraded in a single step. Possible areas of application are the treatment of hospital waste water (yellow water from radiology), the removal of trace substances from drinking water before further use (beverage production), the disinfection of cooling tower water or the treatment of organically contaminated industrial and municipal waste water for reuse (circulation water in aquacultures).



LUMiSpoc - NEW Single Particle Optical Counter designed by Colani

Particle size, size distribution and particle count are major characteristics in the field of particle technology. Contamination analysis and classification of nanomaterials according to 2011/696/EU require precise data of the number based particle size distribution and particle concentration.

LUM GmbH introduces a new measuring instrument, developed by LUM GmbH and designed by the world-famous designer Luigi Colani. The LUMiSpoc is a highly advanced single particle scattered light photometer that measures particle size distribution and particle concentration of nano- and microparticles in suspensions and emulsions with an unparalleled resolution and a dynamic range from below 100 nm to a few micrometers.

Powered by SPLS-Technology (Single Particle Light-Scattering) the LUMiSpoc records light scattered into different directions from individual nano- and micro particles passing a focused laser beam of non-spherical cross-section. Particle separation is achieved by hydrodynamic focusing of sample flow. Volume calibrated sample flow allows for accurate measurement of particle concentration.

The LUMiSpoc analyses multimodal and very broad dispersed real-world particles and determines smallest size differences down to the nanometer range.



Continued advances in filtration

With the development of Porometric, GKD has created a woven filter medium that is not only highly accurate but that also outperforms 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. 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.



Future-oriented and economical cutting of filter materials by laser

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.

Artificial Intelligence to identify binder and fibers on μ CT-scans of nonwoven

Simulations applied to material development pave the way for a genuine technological and economic breakthrough in filtration R&D. The simulation software GeoDict[®] covers the entire material development workflow: multi-scale 3D image processing, modeling of materials, visualization, material property characterization, and material development with precise prediction of material behavior.

FiberFind-AI, the new development integrated into GeoDict[®] 2019, is based on artificial intelligence and includes the tools to analytically understand 3D images taken by μ CT.

A neural network is trained in nonwoven microstructures generated in GeoDict[®] and, then, is able to recognize binder and to identify fibers directly from μ CT-scans of real nonwovens. Once all fibers have been identified, detailed insights into the properties of fibers in a material are simply obtained. For example, the trajectory of a fiber after deposition in a nonwoven, fiber diameter and length distribution in a glass fiber-reinforced plastic, or local deformation of fibers in weaves.

With FiberFind-AI, nonwoven media manufacturers can develop novel, optimized products while strongly saving in prototyping and experimental costs and -time.



NEW – EMW®'s ATEX Panel Filter

EMW®'s ATEX-certified air filters comply with ATEX Directive 2014/34/EU (formerly 94/9/EC) and are suitable for use in all EX zones. Designed for heavy-duty offshore applications, the new ATEX panel filter provides reliable operation under even the toughest conditions.



Stabilizers integrated in the filter protect and maintain the pleat pattern in the media, ensuring low initial pressure drop with minimal increase in subsequent operation. The conductive synthetic media is solidly mounted around its entire perimeter in a dissipative plastic frame. A seamless cast-in-place seal holds the air filter firmly in place without leakage.

For further information, please check www.emw.de

High-end filtermedia: 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:

- Hydrogen sulphide (H_2S)
- Sulphur dioxide (SO_2)
- Sulphur trioxide (SO_3)
- Formaldehyde (CH_2O)
- Oxides of nitrogen (NOX)
- Chlorine (Cl)
- Ethylene (C_2H_4)
- Light VOCs

The granulate has a porous structure which is impregnated with potassium permanganate ($KMnO_4$), visible as the specific purple colour.



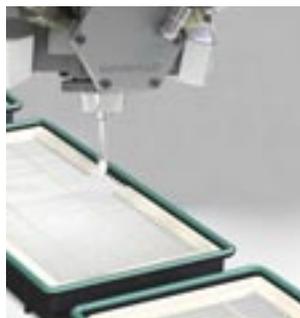
- PAARS® does not burn, suitable in environments prone to fire.
- PAARS® does not support microbial colonisation.
- PAARS® is very effective against cigarette smoke.
- PAARS® provides essential protection for artefacts in museums, art galleries and archives against acid gases.

In addition to the active oxidation effects, the purple colour is part of innovative "ENTEC Consumption indication system". The colour change that occurs during operation serves as a visual indicator that indicates the consumption level of the product at all times.

Foamed filter adhesive saves costs and weight

Sonderhoff, since 2017 part of Henkel AG & Co. KGaA, offers highly effective solutions to the filter industry. They increase the efficiency of filter production and improve the quality and function of filters. The range includes adhesive sealants and foam seals for vacuum cleaner, automotive and air filters as well as dosing systems for fully automatic material application.

An innovative example is the foamed 2-component polyurethane filter adhesive FERMADUR® for gluing the filter medium into the filter frame.



Due to the foamed cell structure and the resulting lower density, the amount of adhesive per filter can be reduced by up to 50 %. In addition to sustainability and the resulting high economic efficiency in filter production achieved by this product, the requirements for high-quality filter bonding are also met. The lower weight is an essential criterion for easier part handling.

The foamed adhesive sealant is applied fully automatically, accurately contoured and reliably with the Sonderhoff mixing and dosing systems. The Sonderhoff material systems for filters can also be equipped with features such as low emission for low VOC values, antimicrobial properties or flame retardancy in accordance with UL 94 HF-1.

Thermo Fisher Scientific

Hall 11.1 D14

Phenom Desktop SEM; automated fiber analysis for non-woven

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. We now offer academic and industrial customers a complete portfolio of scanning electron microscopes (SEMs), ranging from desktop instruments to high-end floor models. Would you like to experience a Phenom Desktop SEM yourself?

Join our live demos at FILTECH 2019,
Hall 11.1/Booth D14.



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 10µm 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.



A roll sample of our metallic sheet materials will be exhibited at the BinNova booth.

A unique multipurpose reference aerosol test system

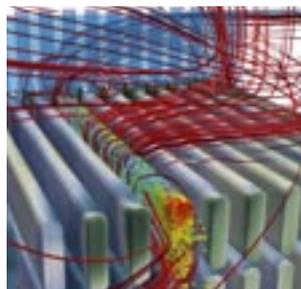
In recent years, the AFC type filter media test systems of Topas GmbH evolved to an indispensable instrument for several industrial applications. The multifunctional and compact basic design, which synergises aerosol generation (monodisperse/polydisperse solid/droplet aerosols), aerosol conditioning (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 (in close accordance to ISO 16890, Ashrae 52.2, ISO 5011, DIN 71460, ISO/TS 11155-1).



Furthermore a special QC setup is offered for production testing 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 .. 7 m/s. All AFC type test systems are equipped with a user-friendly control and test evaluation software.

Filtration modelling tools based on computational fluid dynamics (CFD)

CFD tools enable a deep insight in processes and help to optimize the flow which finally results in more efficient products with longer lifetime. DHCAE Tools presents modelling systems based on the open-source CFD toolbox OpenFOAM for filtration on macro- and mesoscopic scale. In the macroscopic scale the modelling tool allows to investigate the loading of large filter clusters, e.g. several hundred or thousand bag filters including the dynamic shift of the continuous flow during the filter load cycle. The mesoscopic modelling is designed for more detailed investigations in the hosing for a single filter, considering the cake build up or separation effects in the media. During the FILTECH, a completely redesigned mesoscale filter tool will be presented: New capabilities and selectable relationships for permeability, filter efficiency and porosity modelling based on porous region modelling for the filter media and cake have been integrated. Furthermore, experimental data or derived functions from external micro-modelling tools can be used as input for the mesoscopic modelling. Due to the open-source character of the base systems both modelling tools are highly adaptable to user specific needs and available input data.



On-line Air Permeability / Pressure Drop Analyzer – A Novel innovation for the filtermedia production and quality control

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 the manufactures to see even small process changes and learn how they affect the filtration performance.



New generation of self-cleaning filter

A line of ASF employs a proprietary technology and approach to filter with selfcleaning mechanism. This line of filters was introduced to the market 10 years ago. Throughout this time it underwent a process of improvements and now is a mature product with some 500 units working in various industrial installation. It has numerous unique features and advantages: Employment of wedge wire screens with 60% more open area (in respect to industry standard) that leads to more compact design and lower pressure drops. Active cleaning mechanism that leads to practically "Zero Emission Technology": in most applications less than 0,01% of water is discharged during cleaning.



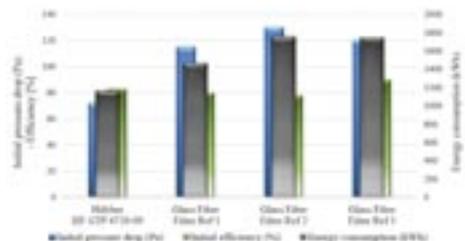
Filter as standard is made of stainless steel with a wide choice of grades including Super Duplex screens and titanium body.

Within a basic model run with compressed air options include electric version and metal scrapers for heavy duty applications. One of the unique features is possibility to employ electron beam screens that give unapparelled performance when filtering difficult fibrous solutions. Filter is well suited for general water applications like tertiary treatment and cooling water as well as for chemical processes where viscous fluids are to be filtered (paints, oils, resins).

New Energy Efficient HVAC Nanofiber Media: STP-4720

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.



Sulfisorb Plus 4x8 – the newest addition to the “Sulfisorb” family.

Sulfisorb Plus 4x8 is a safe, economical and effective solution for removal of sulphurous compounds commonly found in gas phase applications such as biogas, sewage odours and factory emission. Sulfisorb Plus 4x8 has been developed in response to market demands for a high adsorption activated carbon that provides consistent performance at a fair price. Sulfisorb Plus 4x8 is suitable for removal of volatile organic compounds, hydrogen sulfide and mercaptans from gas and air.

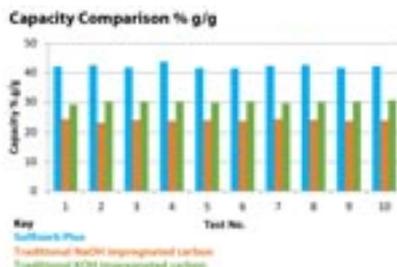
Already in use for more than 4 years, Sulfisorb Plus is used at over 100 sites around the world. It is proven as

- SAFE
- ECONOMICAL
- EFFECTIVE

Sulfisorb Plus 4x8 offers advantages over traditional pelletised technology due to

- Improved cost effectiveness
- Guaranteed purity
- Excellent performance
- Improved EBCT

Sulfisorb Plus 4x8 is already available on the general market. Join successful site operators around the world by switching to Sulfisorb Plus. Our production lines are running and we can help save you money!



3D High Performance Metal Filter Cloth

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.



Memsep 'EasiWet' technology eases integrity testing of critical filters

Membrane filter cartridges are integrity tested to ensure that they are intact and able to retain bacteria and particles in accordance with their stated efficiency. The membrane must be completely wetted to ensure each pore is filled with water, in order to ascertain the diffusive flow of air through the membrane and thus, its integrity. A number of issues can result in a false failure; most can be easily resolved by correct installation, however ensuring the membrane is fully wetted is problematic:

- The polymeric hardware chosen to construct the filters can hinder wetting of the membrane by creating 'dry spots'.
- The membrane material itself can be hydrophobic, and inconsistently rendered hydrophilic.

Memsep Filtration have resolved both issues with a proprietary manufacturing process that inhibits the formation of 'dry spots', and the selection of a membrane with a consistent 'wetting' performance. The result is our 'EasiWet' filter cartridge and capsule range comprising a polyethersulfone membrane with polypropylene hardware that retains the advantages of such a configuration: an extended life, with superb chemical and thermal compatibility, without the inherent disadvantage of inconsistent integrity testing.



New centrifugal liquid solid separator (RoSL 700)

Assononic's new centrifugal liquid solid separator (RoSL 700) is very efficient in industries like plastics, food, fibers, calcium carbonate, alumina, magnesia, water prefiltration, biomass plants and many more.

Main application areas here are: Pre-filtration, Clarification of suspended solids, Thickening of suspended solids, Dehydration of solids, powders and organic matter.

The new stainless-steel centrifugal screen filter basket is ultrasonically optimized. Depending on the process requirements we use stainless steel sintered mesh laminates or woven wire mesh filtration media. Another possibility is the use of wedge wire filters.

The filter screen is firmly bonded to the stainless basket and allows optimal ultrasonic energy transportation for filtration from 20 – 2.000 µm. For fine filtrations we use ultrasonic-support in the range of 30 – 38 kHz to improve the transfer of the fluid phase through the filter screen.

The grade of dryness of the solids can be adjusted by the inclination of the machine. The more the RoSL 700 is inclined the longer the filtration media remains inside the basket and the drier the media exits the machine.

This wide filter media options together with the specialized driven and adjustable rotary forces makes the machine very versatile. The machine features a small footprint and very low energy consumption.

Performing 1.500 kg/h of highly viscous chocolate materials and up to 6.000 kg/h of suspension with 40 % solids the RoSL 700 has a wide range of applications.



Innovative capillary and tubular industrial stainless steel membrane filters

The innovative AmesPore® XPM products are made by Powder Metallurgy Extrusion. This process - as compared to conventional CIP pressing - has significant advantages and it enables:

- Higher filter performance
- Very compact module design
- Cheaper industrial filtration systems with smaller foot-print
- Lower production cost and less raw material usage
- Thinner wall and smaller tube diameter
- Compact consumer products like durable anti-legionella shower head filters (patent pending)



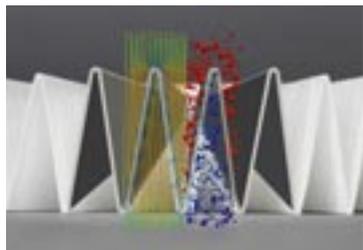
The tubular membranes are laser welded into a 316L housing for membrane areas of 0.5 – 10 m². The tubes can be used as such, as well as coated with a proprietary stainless steel or ceramic layer. Pore size range in this way is from > 10 micron down to 20 nm allowing a broad range of filtration applications including Food & Beverage, Dairy, Membrane Bioreactors, Clarification Processes, Pharmacy, Water Treatment and Gas Filtration (PM 2.5).

Advantages as compared to existing ceramic membranes include high robustness, no breakage due to non-brittleness, with much more severe process conditions allowable.

For this innovation AmesPore® XPM received the FACHMETALL AWARD (Germany; patent applied).

Modeling and simulation of filtration and more

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 micro-structure of a nonwoven (or a composite in general), the software FeelMath computes the mechanical properties of the material. FilT EST 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.



New Solution for filtration and washing of fine color pigments

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 m² BoCross Dynamic Filter is able to replace one 60 m² filter press. The most important aspect is that this technology is capable of meeting growing product purity requirements in the future.



JCEM Group's Product Offerings Continue to Expand

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 3mm – 300mm.
- New High-Speed P7 CNC Blade Pleater for speeds up to 400 pleats/minute continuous duty.
- Complete Cabin Air Production lines in combination with our 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.
- Plus, much more as we have the technical expertise and capabilities to offer custom solutions for even the most demanding applications.



smartMELAMINE® - the first melamine meltblown nonwoven

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 - 2µm 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.



Cambustion

Hall 11.2 S23

NEW – The Aerodynamic Aerosol Classifier (AAC)

The Aerodynamic Aerosol Classifier (AAC) is a novel instrument that offers the ability to select aerodynamic particle sizes from 25 nm to over 5 micrometres. It achieves this by balancing the centrifugal force in a spinning cylinder with the aerodynamic drag acting on the particles.

Since classification is not affected by particle charge, the AAC offers superior transmission efficiency to the Differential Mobility Analyser (DMA) and eliminates the DMA's multiple charging issues. Applications where the AAC has already found use as a DMA alternative include filter penetration testing, aerosol charger efficiency testing and calibration of condensation particle counters (CPC).

When paired with a CPC, the AAC can step scan the cylinder speed to produce aerodynamic size distributions, which are configured and logged through the AAC touchscreen user interface.

New in 2019 is the ability to conduct continuous scanning with ramping of the cylinder speed for higher spectral resolution and faster scans. This set-up forms the aerodynamic alternative to the Scanning Mobility Particle Sizer (SMPS) which has been conventionally used in aerosol studies, but the AAC's scanning offers a wider size range and eliminates the SMPS' needs for a radioactive or X-ray source and charge correction.



New pleating equipment and glue lamination line

Danish filter media manufacturer, JP Air Tech continues to growth in 2019 and expands its filter media business by investing in a new pleating equipment and glue lamination line. Company also launched a new product "ECOWEB" in its portfolio to meet the increasing market demand for a better pulse-cleanable filter media.

With the installation of the new blade pleating equipment, which is 2100 mm in width, company is now able to offer pleated filter media (pleat-pack). The state-of-the-art pleating technology allows to customize the pleat depth in the range between 16-50 mm to meet specific filter requirement.

The new glue line will allow to laminate a broad range of nonwoven fabrics and membranes to produce multi-layered filter media products to support the growing demand for high-end filtration materials and expanding into new markets including automotive cabin and HVAC segments.



ECOWEB is designed and engineered with a particular focus on enhancing the dust release capability. The improvement has been achieved by using an additional upstream layer laminated to a fully synthetic corrugated base media. The VDI 3926 test results demonstrates ECOWEB has significantly better pulse cleanability compared to traditional nanofiber filter media.

TROX – much more than just a filter

The filter spectrum from TROX ranges from coarse dust filters to fine dust filters and through to particulate filters for maximum air cleanliness. High-quality filters and filter units for clean and safe solutions – from standard applications to clean rooms – are, however, just one component of the TROX portfolio. Top-of-the range services are also part and parcel of the TROX offering:

Save energy costs – free energy costs calculator

70% of the life cycle costs of a filter are due to energy costs.

With an energy-efficient filter, savings of up to 50% can be made.

Use the free online TROX LCC calculator to see how much you could save by using the right filter. Simply [click here](#) and enter the volume flow rate

Be on the safe side – free webinars and media library

With TROX, you are always up to date and ideally equipped for your professional practice. From directing you to the right filter in accordance with ISO16890, to meeting the requirements of the Hygiene Directive 6022 and through to planning seminars for laboratory air - with free webinars on standards and guidelines or our media library, you get the right information quickly and simply. Go to the German Online ACADEMY.



Particle filters and adsorptive filters – Qualification equipment

Air cleaning processes are often done by combination filters or similar filter systems. The ILK Dresden developed together with the Topas GmbH a test system enabling the qualification of such filter systems also under difficult condition like humidity's up to 80% and using toxic test components. This system uses a standard test duct according to ISO-11555, which was upgraded with a new developed humidifier and several gas and vapor dosing systems to be able to perform a great variety of filter tests and further investigations. By using a suitable dust and liquid aerosol generators including soot generators all kinds of particle filters and filter media can be qualified for future applications. Test standards like EN 15695-2 and ISO 14269-4 content typical test routines, combining filter tests with dust / liquid particles and an organic vapor. These could be realized in the new test rig. In the future, also cabin filters for the application of personal protection (so-called ABEK filter) will be investigated too. Such filters are installed for example at earth moving machines and need to be tested also with toxic gases like SO_2 , H_2S and NH_3 .



Ahlstrom-Munksjö Extia® – Extending Filtration Lifetime for Air Pollution Control

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 us at Filtech for further news on the Extia® portfolio expansion; including Flame Retardant, Conductive and High Efficiency media
www.ahlstrom-munksjo.com/extia

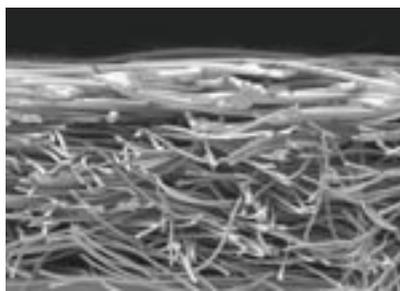


Colback® Plus: a new single layer for support and filtration

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

Hall 11.2 P23

Energy Efficient Crossflow 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.



Ecofilters: Automatic production process

The integration with AUTEC and GUSBI let to automate and have the production process under control from the loading of the paper to the unloading of finished products.

The load of the media on the rotary table is automatically performed through the use of an anthropomorphic robot: the concentricity and the repeatability of the coupling of the paper with the endcap is ensured.

The vertical press of the paper with the endcap is independent for each side of the filter. The load cells installed on the press allow to check each filter pressed; even the heating of the endcaps is controlled station by station setting the percentage of power for each single IR lamp and setting the height of the lamps.

The load of the endcaps on the rotary table can be done automatically, with different solutions for loading the rotary table, with different level of automation and production autonomy.

At the end of the production process the dimensional check is carried out automatically: a dimensional non-conformity is detected and the not compliance product is expelled from the unloading conveyor.

HETA Verfahrenstechnik GmbH

Hall 11.1 D7

HETA SF-CONTROLLER –The future of efficient process plants

To be able to advance digitization 4.0 in the industry and, more important, in processing plants, all single components must be capable to communicate.

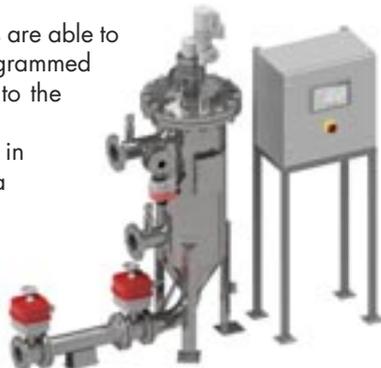
HETA in Lich, Germany, has been aware of this for quite a long time and therefore created an innovative, modern filter system for the future. Due to digitization and today's efficiency of the plants, this step is inevitable and pioneering for the global industry.

In order to be able to face the competition from steadily growing low-wage countries, it is imperative to increase the efficiency of plants and extend their service life to the optimum.

With our SmartFiltration-controller, all common interfaces are able to communicate efficiently. Furthermore, and due to the programmed predictive intelligence, the system is able to self-adapt to the process. Unplanned downtimes can thus be avoided.

Maintenance intervals can be controlled and determined in advance, consequential damages will be avoided and a long facility lifetime is guaranteed.

The HETA 4.0 Filter Controlling System has already proven its reliable high performance in a standard production environment; a patent is pending.



What makes ColumbusPC Pleat so great

Wiltec presents the advantages of the Columbus filter medium with the advantages of a modular exchange in a super filter: PC Pleat. PC Pleat is a box filter made from high quality recycled cardboard, containing the Columbus filter medium. Due to the unique structure and composition of various degrees of fineness, PC Pleat has the highest holding capacity and efficiency of all box filters! With the new mix and match system we can always find the best solution for your situation.

Mix & Match: always the right efficiency

There are many different types of lacquers and adhesives. For each type a different filter or combination of filters can be chosen, which is the most suitable. With a complete range of PCP products we can always make the best combination for you. Our regular assortment contains 3 pre filters, 8 main filters and 2 after filters. In this way all types of paint or glue can be captured with the right efficiency.

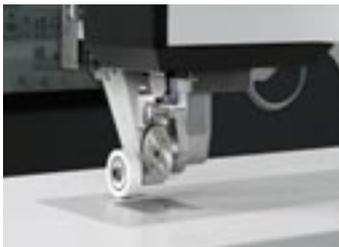
Energy efficiency

Columbus filters have the lowest resistance during the entire life time of the filter. The initial resistance of PC Pleat is up to 5 times lower than most other box filters. The low resistance creates an optimal airflow and low energy consumption, which ensures that the overspray is well extracted.



Unique feature and world first: Continuous welding force monitoring in a ultrasonic welding machine

With the new 8311, PFAFF INDUSTRIAL introduces a new generation of ultrasonic welding machines. With more than 30 years of experience of rotary ultrasonic welding, the engineers at PFAFF have managed to make fundamental improvements to this process. 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 - a true world first and a quantum leap in the ultrasonic welding of textiles. The machine is now easier to set up and handle.



The process is now easier to understand, reproduce and carry out. In short - the machine has been taken to a new level. An additional highlight of this machine is the cutting function. The motor of the cutting blade to the right of the welded seam can be switched on and off. Smart functions like seam end detection, ply detection (e.g. cross seams) are realized that new machine generation. The machines can be used as a single workplace or integrated into a production unit for processing filters (e.g. filter bags and filter plates).

Achieve Next Level of Separation Performance with Veco's High Precision Filtration Screens

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 our "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 meshes; dimensions can be down to 2 microns with very tight tolerances.

What filtration challenges can Veco help you with?



POROMETER NV

Hall 11.2 M14

POROPERM™

Proudly we can 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 nm. 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. Please contact us on info@porometer.com for additional information.



Discover the latest results of world-wide research and find targeted solutions for your filtration tasks.

Benefit from top level knowledge and know how transfer





The Conference

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.

More than 200 Lectures from 35 Countries

An exciting programme gives a representative cross-section of the different procedures and appliances 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 purification down to the pharmacy and biotechnology.

Conference Fees

Day-Ticket	€ 395
3-Day-Ticket	€ 810
Short Course	€ 580

(all prices including German VAT).

For full programme and compendiums of all abstracts visit www.filtech.de → [conference](#)



Your Conference Registration includes:

- Proceedings featuring all papers (abstract book & full paper versions on USB stick)
- Refreshments during breaks & lunch/es
- Welcome Reception on October 22, 2019
- Entrance to the FILTECH 2019 Exhibition & Catalogue
- Cologne Public Transport Ticket

Short Course 1

9:00 am - 6:00 pm

Solid/Liquid Separation

This 1-day Course "Solid/Liquid Separation" is of interest to engineers, scientists, managers and other technical personnel involved in solid-liquid separation in the process and other industries. They will find the course informative, regardless of whether they design, purchase, research or use filtration and separation equipment. Plant engineers, technicians and operators should find the course materials directly applicable, and graduate research students will value the expert introduction to the technologies. It is a comprehensive review of the processes involved in the separation of solids from liquids, which will emphasise practical aspects and present appropriate theoretical information as necessary.



Course Presenter

Dr.-Ing. Harald Anlauf is Academic Director at the Karlsruhe Institute of Technology (KIT), Institute of Mechanical Process Engineering and Mechanics and since 40 years active in the field of solid liquid separation technology. His academic degrees as Chemical Engineer he earned 1980 and 1985 at Karlsruhe University. 1999-2006 he was Chairman of the VDI-GVC working party „Mechanical Liquid Separation“, since 2000 Co-Chairman of the FILTECH Congress Scientific Committee. 2004-2008 he was Chairman of INDEFI and President of the 10th World Filtration Congress 2008 in Leipzig, Germany. He published 170 technical papers, books etc. and is internationally active in giving consultations and lectures.

Short Course 2

9:00 am - 6:00 pm

Fine Dust Separation

This 1-day "Fine Dust Separation" Short Course is of interest to engineers, technicians, scientists, managers, and other personnel involved in gas-solid separation in the process and other industries. They will find the course informative, regardless of whether they design, purchase, research, or use dust separation equipment for product recovery, emission control, air cleaning or process gas cleaning. It is a comprehensive review of the processes involved in the separation of solid or liquid particles from gases, which will emphasise practical aspects and present appropriate theoretical information as necessary.



Course Presenter

Prof. Dr.-Ing. habil. Eberhard Schmidt is Full Professor for Safety Engineering/ Environmental Protection at Wuppertal University. His academic degrees he earned 1991 and 1998 at Karlsruhe University. From 1993 to 1994 he was affiliated with the Joint Research Centre in Ispra/Italy. In the years 1998 and 1999 he was with Degussa company in the department of process engineering/ particle technology.

He is Co-Chairman of the FILTECH Conference and was Scientific Secretary of 10th World Filtration Congress. He has published more than 100 technical papers, books, patents, etc. and consulted and lectured throughout the world.

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FILTECH 2019

Koelnmesse · Cologne · Germany

Pre-register until 05.10



Opening hours Exhibition

October 22-23 9 am - 6 pm
October 24 9 am - 5 pm

Koelnmesse – Hall 11.1/11.2 – Entrance East

Deutz-Mülheimer-Straße 35
50679 Cologne · Germany

Visitor Tickets

Registration until 05.10.19

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from 06.10.19

1-Day Ticket: 40 €

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