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VILEDON NEWS

IN FOCUS: ISO 16890

THE LOCATION MAKES THE DIFFERENCE

INCREASED EFFICIENCY THROUGH NEEDS-BASED AIR FILTRATION



Relevant particulate matter classes vary according to the environment:



Rural areas



Urban regions



Coastal areas



Desert regions

Whether near the coast, in a megacity or close to deserts, the requirements for efficient air filtration differ significantly depending on local conditions. We determine the ideal filtration system for you on the basis of the new ISO 16890 test standard for filter evaluation and classification.

The transitional period will soon come to an end. From mid-2018, ISO 16890 will finally replace the previous European standard EN 779. And for good reason. The new standard evaluates filters on the basis of a broad spectrum of particles that reflect the real conditions of urban and rural regions. In the future, filter efficiencies will be determined in relation to the particulate matter classes PM_{10} , $PM_{2.5}$ and PM_{10} . Separation levels such as ISO ePM10 75% or ISO ePM1 85% will replace filter categories such as M6 or F9. Numerous environmental authorities also use the particulate matter classes of ISO 16890 as a benchmark. The advantage of this is that once you know the local particulate matter values around your site, you can perfectly tailor your filtration system to meet them.

Differences in local particulate matter pollution

Whether the ambient air predominantly contains large or very fine particles depends on the location. Both climatic conditions and human activities have a great influence on the local particle spectrum. So, for example, particulate matter pollution in rural areas is typically characterized by pollen, spores and erosion dusts. In urban regions, on the other hand, the air is mainly polluted by the finest particles from industrial emissions and diesel soot. As a result, the ideal filtration solution is always adapted to the nature of the fine dust pollution on site.

In focus: the respective process requirements

In addition to local particulate matter pollution, there is another crucial factor when choosing the best possible filtration solution: your specific process requirements.

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What is PM?

Particulate matter, or PM for short, specifies the particulate matter size. Thus a particle of 10 microns size corresponds to PM₁₀, where a particle smaller than 1 micron belongs to the PM₁ class. A filter needs to retain at least 50 percent of the corresponding particle size range to be assigned to a specific particulate matter group. So an ePM10 70% filter captures at least 70 percent of particles of 10 microns or less.

For example, in surface treatment, reliable filtration of pollen and dusts is central. This is because these particles have an influence on the quality of the coating result. In the food and beverage industry, on the other hand, the filtration solution needs to ensure hygienic production conditions and thus completely filter out germs and harmful particles from the supply air.

Calculating the ideal solution with e.FFECT

An efficient filter concept is thus always individually adapted. With e.FFECT, the electronic Freudenberg Filter Efficiency Calculation Tool

Calculation Tool, we are able to develop a filter system that exactly meets your needs. Based on various parameters such as local particulate matter pollution, the targeted degree of purity of the supply air or the average volumetric flow rate, different concepts can be calculated and directly compared. The efficiency of multi-stage filter arrangements can also be easily determined with e.FFECT. Talk to us – together we will find the optimal filtration solution for your application. ■



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Detailed information about the new ISO 16890 test standard can be found on

www.freudenberg-filter.com
> ISO 16890

Our new brochure “Closer to Reality” provides comprehensive information about the ISO 16890 test standard and the current EUROVENT 4/23 (2017) recommendations. You can download it here:

www.freudenberg-filter.com
> Download Center > Brochures

Dust has many faces: relevant particles and their sizes in the particle spectrum



ACID GASES UNDER CONTROL

ECONOMICAL, SUSTAINABLE, FLEXIBLE IN USE – THE NEW VILEDON CHEMCONTROL FILTER CANISTER

Many industrial processes produce gases that smell bad and often lead to corrosion of sensitive electronic components. The result is malfunctions, electronic defects and plant downtimes. Reliable filtration of corrosive gases prevents damage, minimizes downtime and lowers operating costs.

Hydrogen sulfide, nitrogen oxides or chlorine gas are aggressive gases released in the course of processes used in various industries such as petrochemicals, wastewater treatment or papermaking. In combination with high humidity or heat, they can cause damage due through corrosion and endanger current-carrying components. The new Viledon® ChemControl filter canister solves this problem. Specially developed for flexible application, it offers excellent protection with little effort. Thanks to the universal three-point bayonet connection, the canister can also be used in a variety of existing systems.

Sustainably designed: refillable filter canisters

The replacement of old filter elements can be expensive. Not in this case. The corrosive gases are filtered from the air using field-tested Viledon® ChemControl pellets. Once the pellets are saturated, the filter canister can be easily emptied and refilled and thus used many times. Depending on the type of corrosive gas, all the gas-specific pellets of our ChemControl portfolio can be used in addition to conventional activated carbon pellets. In this way, the Viledon® ChemControl filter canister offers maximal application flexibility along with simple handling and maximum cost-effectiveness. ■



You can find further information about the Viledon® ChemControl filter canister on

www.freudenberg-filter.com
 > Air Filtration > Gas Phase Filtration
 > ChemControl Canisters

VILEDON WATER SOLUTIONS WINS WATER REUSE INNOVATION AWARD 2017

WATER USE OF THE FUTURE



You can find detailed information about wastewater treatment on

www.freudenberg-filter.com
 > Liquid filtration
 > Wastewater treatment

The calculation is simple: if you save resources, you lower your operating costs. Efficient use of water also offers great potential in industrial plants. The industry association Water Reuse Europe honored our innovative solutions in the field of wastewater treatment.

The much acclaimed project we ran with Bakkavor's Cucina Sano was decisive in winning us the European Water Reuse Innovation Award 2017. The company produces Italian finished goods for British retailer Marks & Spencer. To achieve more sustainable and cost-efficient production, Viledon® Water Solutions developed a high-performance wastewater treatment plant in close collaboration with Aquabio technology. As a result, more than 80 percent of the process water is now recycled and reused. Because the water quality complies with the strict drinking water

regulations of the British authorities, Bakkavor's Cucina Sano also uses the treated water directly in food production. This saves large quantities of fresh water at the site and reduces the volume of traffic by around 130 tankers per week, vehicles that would otherwise have delivered drinking water to the factory.

Paul Jeffrey, Chairman of Water Reuse Europe, described the project as a groundbreaking example of European innovation strength. Viledon® Water Solutions with Aquabio technology shapes the field of wastewater treatment with innovative solutions – and enables the efficient use of water resources in numerous production locations. ■

SAFE IS SAFE

MORE HYGIENE AND PROTECTION WITH TESTED FILTERS FOR FOOD PRODUCTION



In the production of food and beverages, product safety is the first priority. However, even today, there is still no binding directive describing air filter standards with regard to their hygienic requirements. Nonetheless, to ensure that you stay on the safe side, we base our filter testing on tough recommendations and voluntary industry standards.

The point at which an air filter needs to meet certain hygiene requirements is not bindingly regulated for the manufacturer. When choosing a safe solution, therefore, you need to select filters that meet the requirements of known industry recommendations and are suitable for use in sensitive production areas.

Excluding sources of contamination with safe filters

In the food industry, for example, the standards of EHEDG Doc. 47 form a reliable basis. The EHEDG Group, to which we also belong, sets out guidelines to prevent hygiene problems and ensure safe processing and packaging. Among other things, the current guideline describes the design and layout requirements for air filters and ventilation systems with regard to their filtration performance, process safety and hygiene. Products that conform to EHEDG Doc. 47, for example, use suitable frame, sealant and filler materials that prevent the formation of potential sources of contamination.

Verified filter technology in all production steps

However, different recommendations are relevant depending on the field of application. In the case of direct contact with food, filters must be used that are harmless according to the requirements of EU Regulation No. 1935/2004 and contain only selected, food-grade materials – such as our filter cartridges and NEXX filter bags. In the case of indirect contact with food, on the other hand, microorganisms or glass fiber penetration in particular present real dangers. That is why we do not use glass fiber in our compact pocket filters. Our MaxiPleat and NanoPleat cassette filters are also certified according to the regulations of ISO 846:1997 and follow the recommendations of EHEDG Doc. 47. This means that they are designed for use in sensitive environments. ■

You can find detailed information about our certified filters on

www.freudenberg-filter.com > Air filtration > Applications > Food and beverages > Hygiene requirements

INNOVATION

FREUDENBERG FILTRATION TECHNOLOGIES RECEIVES F-CELL AWARD 2017

IN THE OVERTAKING LANE: THE FUEL CELL

The vehicle drives of the future will be diverse. Alongside the expansion of their e-car portfolios, many auto manufacturers are backing the fuel cell, which is becoming ever more competitive thanks to new technologies. Freudenberg Filtration Technologies was awarded the f-cell award 2017 for the further development of our fuel cell filter.

The Innovation Prize is awarded annually by the Ministry of the Environment, Climate Protection and the Energy Sector Baden-Württemberg. The award recognizes outstanding application-related developments in the field of fuel cells. The award is intended to highlight the potential of the technology and also to promote marketable product developments. Aspects considered in the evaluation process are the level of innovation, the market potential and the benefits for

the environment and society. The committee honored the optimization of the micronAir® fuel cell filter Type N, which is used in the supply air filtration of the drives and offers optimal protection against particles and gases. In the future, Freudenberg will continue to actively help shape developments in promising fuel cell technology with new solutions and products. ■

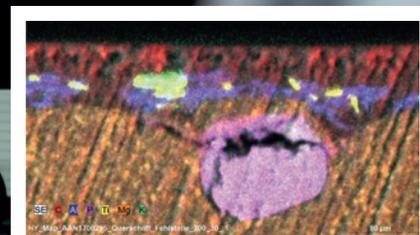


You can find detailed information about our filter elements for fuel cells on

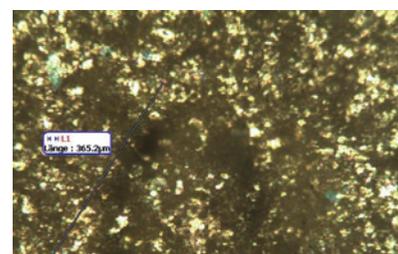
www.freudenberg-filter.com > Automotive Filters > Fuel Cell Filters

ON THE TRACK OF DEFECTS

THE BMW GROUP RELIES ON VILEDON FILTERCAIR IN THE CAUSE ANALYSIS OF PAINT DEFECTS



View of a paint defect in cross section by means of electron microscopic SEM/EDX analysis



Incident light microscopy image of the paint defect

Paint defects are not just blemishes. They cost automakers and suppliers a lot of money because, in a competitive market, quality makes all the difference. If there are problems with the painting process, it is therefore important to act quickly – which is exactly what one BMW Group factory did.

Minor surface defects were occurring during the painting of plastic components in the BMW plant. Because the pattern of damage could not be easily interpreted, there were many potential causes. To remedy the problem as quickly as possible, the technicians on site used the Viledon® filterCair service.

First step: root cause analysis

The first question is where to begin. Finding the root cause is always based on a status analysis, which checks the current state of the paint shop. Even at this early stage, potential hazards can be excluded or possible causes limited. “We always look at the process holistically”, explained Michael Steuer, Regional Manager Viledon® filterCair. “All factors are systematically checked. This includes not only an examination of the filter

system but also various measurements. From temperature and humidity to the particle spectrum in the paint booth and the volume flow.” The investigations in the BMW plant revealed a clear result. All work processes were stable, the equipment itself was correctly adjusted and the air balance in the paint line was also perfect.

Going deeper below the surface – with “Basic + Dirt in Paint”

“In addition to the root cause analysis carried out on site, we examined the paint damage in our laboratories in the context of the Viledon® filterCair service module, Basic + Dirt in Paint”, Steuer explained. Under the microscope, an inhomogeneous surface was revealed. In some places, the basecoat was missing entirely. However, due to the uniformly applied clear coat, wetting failure was eliminated as a cause. An electron microscopy inspection of the paint damage led to the analysis of the plastic granules from which the affected parts were sprayed. This proved to be the source of the paint defects. In places where quartz particles were too coarsely grained in the plastic, the basecoat did not adhere.

Viledon® filterCair Service – precautionary aid and problem solver

Once the source of the defect had been identified, the BMW Group was able to react quickly and make the necessary changes.

Are your painting processes already optimally protected? The problem-specific Viledon® filterCair modules offer you individually customizable services that safeguard your processes and optimize them both qualitatively and economically. Since 2017, we have also been providing these services outside of fixed service contracts. Talk to us about your situation and together we will find the ideal solution for your plant. ■

You can find detailed information about our Viledon® filterCair service on

www.freudenberg-filter.com
 > Air filtration
 > Applications
 > Surface Treatment
 > filterCair Service

DRY SEPARATION MADE EASY – AT PAINTEXPO 2018

EFFICIENT ALTERNATIVES TO CLASSIC WET SEPARATION ARE BECOMING EVER MORE POPULAR

Wet separation systems are energy-intensive, produce large quantities of paint sludge and will soon be a thing of the past if the German federal government gets its way. The stricter requirements of the new Federal Immission Control Ordinance are also driving a trend in industrial paint shops towards dry paint mist separation. It is usually possible to convert existing facilities.

At this year's PaintExpo in Karlsruhe, the leading international trade fair for industrial coating technology, Freudenberg will be presenting effective and economical filtration solutions for dry separation. These will include the easy-to-use edrizzi® system.

This paint mist separator made from fire-retardant corrugated cardboard is quickly installed, holds up to 25 kg of paint overspray and can be easily and safely disposed of by incineration. Our DryPleat and DryPleat nano filter plates are also an energy-efficient and low-maintenance alternative to conventional wet separation in dry separation processes using stone meal.

Meet us at PaintExpo 2018 on Stand 2630 in Hall 2 from April 17–20 and see for yourself how easy it can be to upgrade to dry separation. We will also be presenting our individually configurable Viledon® filterCair service packages, which enable you to optimize your painting processes both qualitatively and economically. As you will discover, we can help you make big savings with minimal effort.

Make an appointment right now by simply sending an email to viledon@freudenberg-filter.com. We look forward to discussing your needs with you in person. ■

You can find further information about PaintExpo 2018 on

www.freudenberg-filter.com
 > Company > Events > PaintExpo 2018

TRADE FAIRS AND EVENTS

April 17–20, 2018

PaintExpo: World's leading trade fair for industrial coating technology
 Karlsruhe, Germany

May 8–11, 2018

FoodTech
 Barcelona, Spain

November 7–8, 2018

SOLIDS: Trade show for granules, powder & bulk solids technologies
 Dortmund, Germany

PaintExpo



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