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FILTRATION NEWS

September/October 2014
Volume 33 No. 5
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Published by

INTERNATIONAL MEDIA GROUP, INC.

6000 Fairview Road, Suite 1200
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Phone: +1-704-552-3708
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Publication Data

Filtration News (ISSN:1078-4136) is published bi-monthly by **International Media Group, Inc.** Printed in U.S.A., Copyright 2014.

This publication has a requested and controlled subscription circulation - controlled by the staff of Filtration News; mailed bi-monthly as Periodicals Postage Paid (USPS 025-412) in Novi MI and additional mailing offices.

Filtration News is not responsible for statements published in this magazine. Advertisers, agencies and contributing writers assume liability for all content of all submitted material printed and assume responsibility for any claims arising there-from made against publisher.

Mailing Address for advertising, news releases and address changes:
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International Media Group, Inc.**

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Email: info@filtnews.com
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POSTMASTER:

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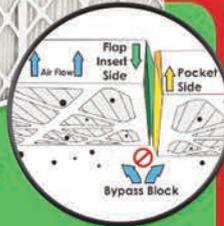
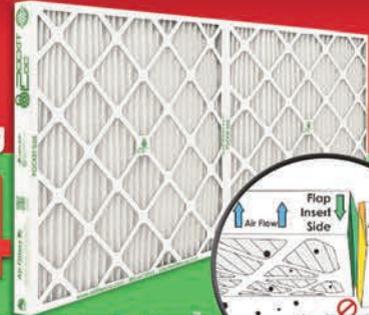
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Nonwoven | Filters

Nonwoven Fabrics: Mechano-Electret Filter Media Provides for IAQ Advantages

By Robert Martin, Associate Category Manager, Kimberly-Clark Professional Filtration



Filters made from nonwoven material for various use with different requirements.

When it comes to designing air filters for today's commercial HVAC systems, filter manufacturers have a variety of choices in filter media. Some manufacturers choose to produce lower-efficiency panel filters, which are typically made of fiberglass and allow for the capture of only the largest airborne particles. Others choose to produce higher-efficiency pleated filters to

allow for the capture of smaller particles that may cause health problems in building occupants.

Manufacturers also have choices when it comes to producing high-efficiency pleated filters. Some use filter media that relies solely on its mechanical structure to filter the air. This media is typically made of a cotton/poly blend. The other type of media uses both its mechanical structure and an

added electret charge. This type of media is possible thanks to the benefits of synthetic, nonwoven fabric.

Bottom line: Filter media is no longer a commodity to be specified solely based on its purchase price. Indeed, filter purchasers are increasingly aware of issues associated with indoor air quality (IAQ) and energy efficiency. In their efforts to improve IAQ for building occupants and reduce the cost

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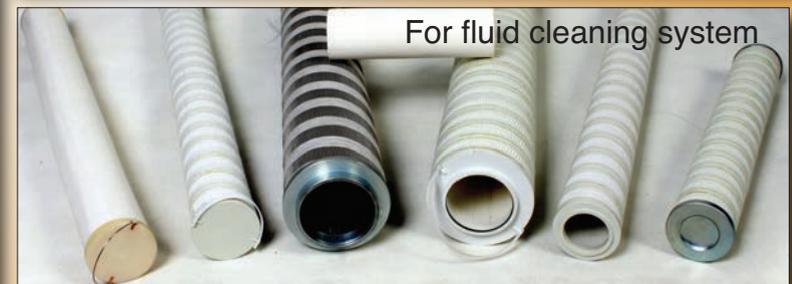
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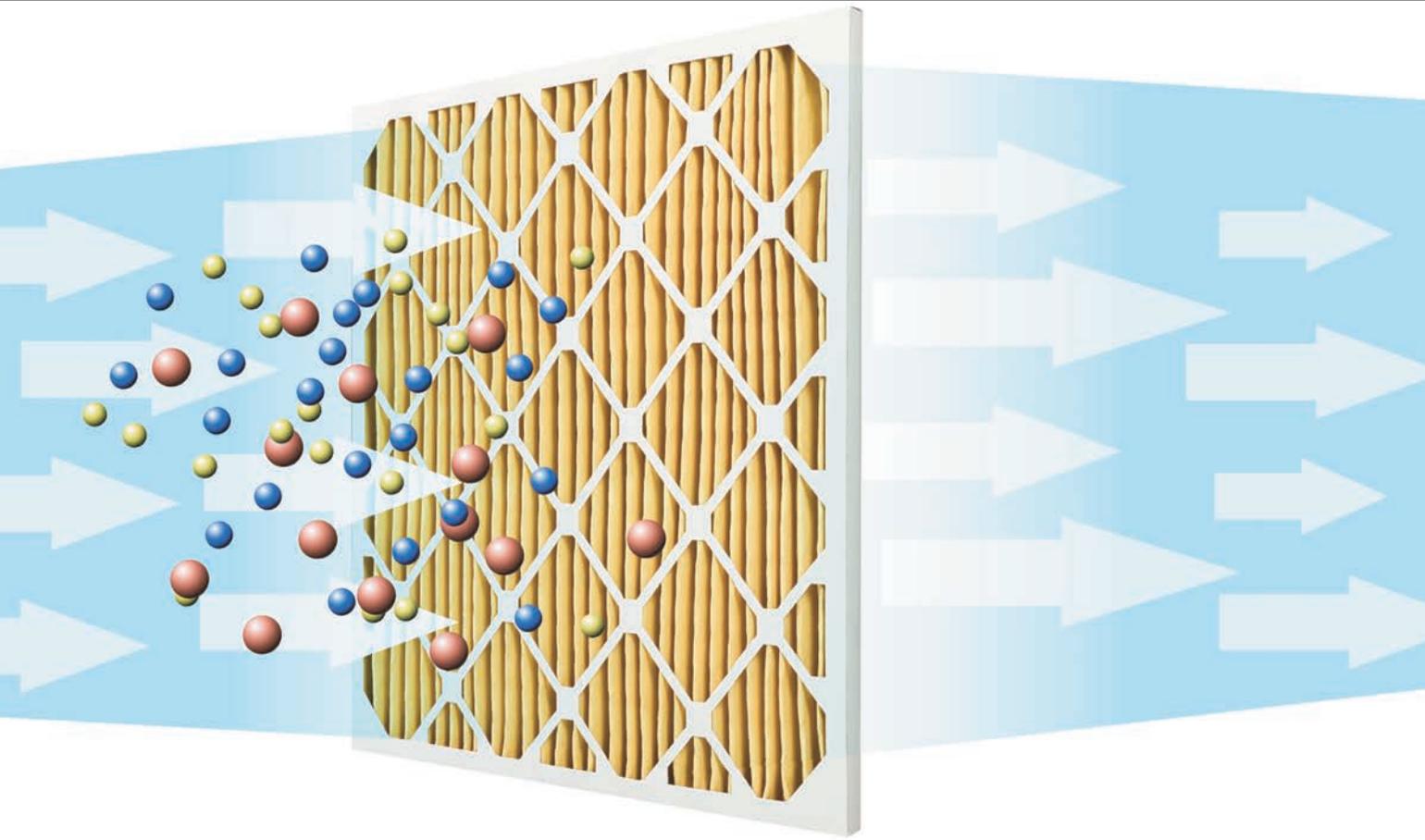
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Nonwoven | Filters



Filter flow through an typical air filter. Particle capture in synthetic media can be enhanced by adding an electrostatic charge, creating an electro-mechanical structure that attracts particles with a natural charge similar to magnetic attraction.

of HVAC energy consumption, they are realizing the added value and benefits of HVAC air filters made with synthetic, nonwoven filter media that can be produced to provide a combination of a robust mechanical structure and an electret charge.

ELECTRET TREATMENT ENHANCEMENT

Particle capture in synthetic media can be enhanced by adding an electrostatic charge, creating an electro-mechanical structure that attracts particles with a natural charge (and those that pick up a natural charge as they pass through the air), similar to magnetic attraction.

There are several benefits of imparting an electret treatment to synthetic, nonwoven filter media that has a robust underlying mechanical structure:

A well-designed electret-treated

media can be manufactured to provide high initial and high-sustained efficiency over the filter lifecycle. Filters that are designed to provide only mechanical efficiency begin their life at their lowest particle removal efficiency and rely on the building of the dust cake in the filter to increase efficiency.

The electrostatic effects created in an electret-charged media are particularly useful in increasing the capture efficiency for submicron particles. This is because, while submicron particles are much smaller than the void spaces present in most commercial electret media, the electrostatic forces within the media structure allow those particles to be removed with high efficiency. Mechanical-only media, on the other hand, must use extremely fine fibers or dense structures to achieve

high efficiency with submicron particles, and this can create airflow resistance in the filter, which can lead to higher energy use/cost.

Studies have shown that filtration efficiency of electret-treated media is unaffected by relative humidity and by long-term warehousing at high temperatures (130°F), meaning the electret effect is resistant to age-related decay under conditions relative to its storage and use.

Electro-mechanical media typically delivers lower airflow resistance in the same filter construction as a mechanical-only filter. This translates into reductions in energy consumption and costs. Mechanical-only filters, on the other hand, tend to create significant drag or resistance, because their filtration mechanisms cause disruption of the particles in the air



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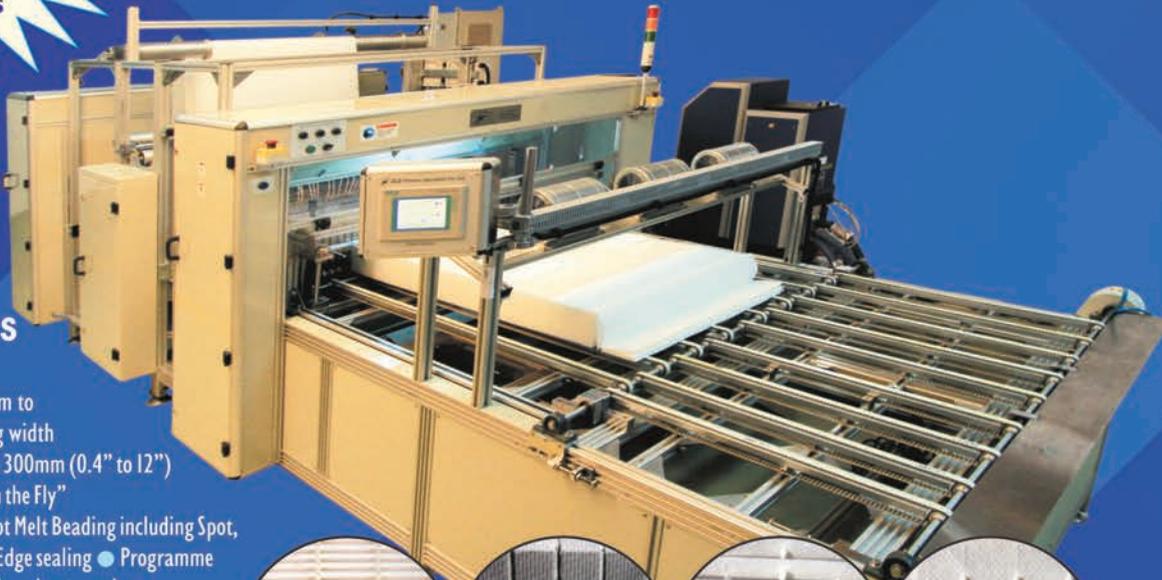
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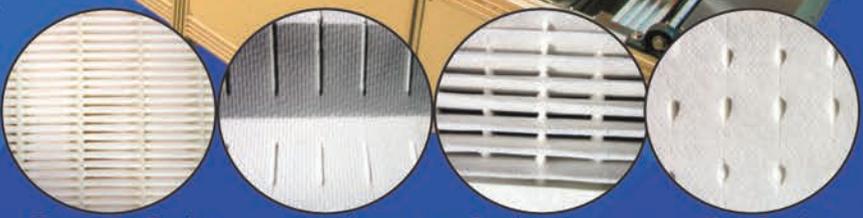


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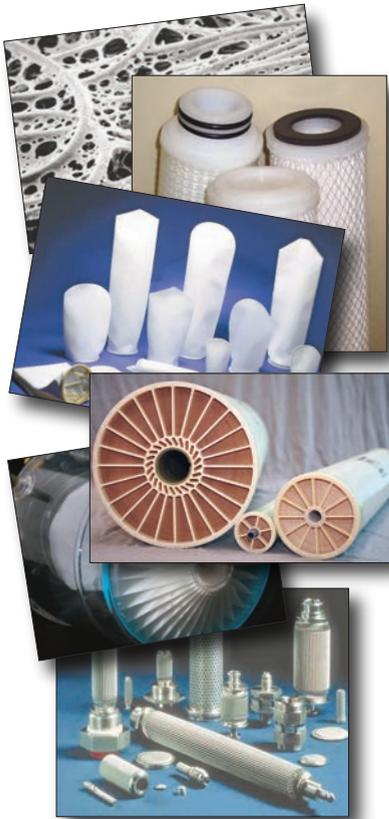


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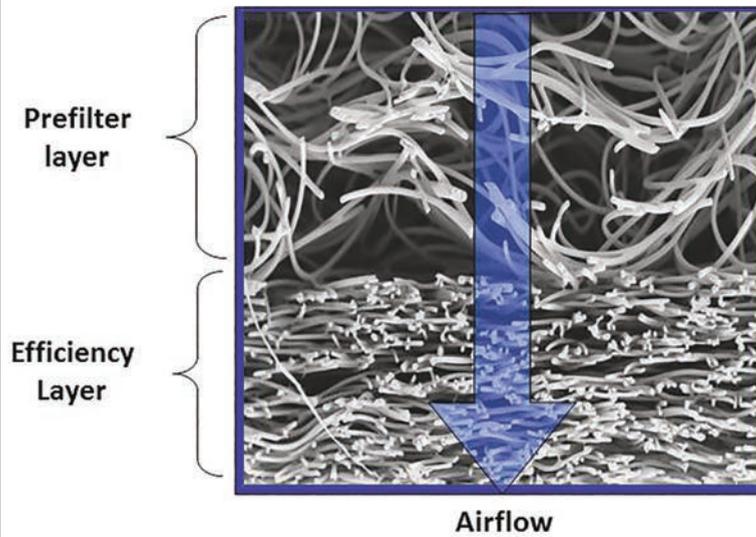


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Nonwoven | Filters

Media Structure

Engineered Gradient Structure



Not all mechano-electret filters are created equally. That's why it's important to look for an electret-treated media filter that has depth-loading media with a gradient density structure in which the media's fibers are more loosely packed on the upstream side and more densely packed on the downstream side. This structure helps to reduce airflow resistance, enhance dust loading and prevent face loading of the filter.

stream. The more resistance there is, the more energy is needed to push the air through the filter.

SELECTING FILTERS FOR IMPROVED IAQ

ASHRAE Standard 52.2 (Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size) is used to test filters for efficiency and provides a useful tool for evaluating filtration effectiveness. The test measures the fractional particle size efficiency (PSE) of a filter, indicating its ability to remove particles of differing sizes between 0.3 and 10 microns in diameter. A MERV, or Minimum Efficiency Reporting Value, is assigned to the filter based on a minimum PSE. A MERV 1 is least efficient, while a MERV 16 is most efficient.

Keep in mind that, depending on the type of filter media used (mechanical- or mechano-electret), two similar

filters of the same MERV rating can have different filtration efficiencies. That is why, to conduct a more thorough filter selection review, it's important to look beyond the MERV rating and request and review each filter's complete ASHRAE 52.2 test report.

The full test report will provide the efficiency of the filter over three particle size ranges: E1 (very fine particles in the 0.3 to 1.0 micron range), E2 (fine particles in the 1.0 to 3.0 micron range), and E3 (coarse particles in the 3.0 to 10.0 micron range). The E1, E2 and E3 ASHRAE 52.2 test values for a given filter provide a more complete picture of the filter's performance of the three particle size ranges. The 52.2 test also provides additional information such as airflow resistance, which can impact energy use during the filter's life.

Many pleated filters today (especially at commonly used MERV 8) have

very low E1 and E2 efficiencies. In fact, under the ASHRAE 52.2 Standard, there is no minimum requirement threshold for E1 particulate capture below a MERV 14 rating and no minimum requirement threshold for E2 particulate capture below a MERV 9 rating. Filters with mechano-electret media often provide better E1 and E2 performance than is required by MERV.

When evaluating filters, be careful not to confuse the filter's MERV and E1, E2 and E3 efficiencies with the results of the Standard's Appendix J (Optional Method of Conditioning a Filter Using Fine KCL Particles), which should be reported as "MERV-A." This Appendix was created to address the interest of critics of ASHRAE 52.2, who were concerned that air filters featuring an electret charge performed at a high filtration efficiencies during initial testing while their filtration efficiencies could decline in actual use.

The MERV-A test subjects the filters to extreme loads of fine KCl (potassium chloride) particles – many times what the filter would be exposed to over its real-world, installed, useful life. It does not represent actual use conditions at all, but instead represents a "worst-case" scenario that is likely to never happen. In addition, differences in environmental conditions and lab-to-lab variances have also been uncovered, leading to the conclusion that techniques, which "condition" the filters, are not repeatable. Moreover, these same conditioning techniques have been shown to decrease the filtration efficiency of certain mechanical-only filters as well. These are some of the reasons the electret masking step was not added to the 52.2 Standard as a mandatory part of the test but was included as an option only.

CONCLUSION

High E1 and E2 efficiencies support healthier IAQ, as these are the particles that can travel into the deepest parts of people's lungs. That is why it is so important to consider filters with mechano-electret filter media and to look beyond a filter's MERV at the Fine Particle Efficiency rating as a true measure of a filter's performance.

Remember: electret treatments are an

enhancement of an underlying mechanical structure. The combination of different electret treatment patterns/charge distributions and different mechanical structures means that all electro-mechanical filters are not created equally.

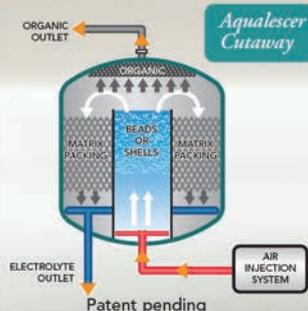
An electret-treated media filter with depth loading synthetic, nonwoven media and a gradient density structure, in which the media's fibers are more loosely packed on the upstream side

and more densely packed on the downstream side, will help to reduce airflow resistance, enhance dust loading and prevent face loading of the filter. EN

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Advancing the flow of industry

New Ingeo Grades for Fibers and Nonwovens Deliver Lower Shrinkage, Faster Crystallization and Higher Melting Points

By Robert Green, Fibers and Nonwovens Industry Global Segment Mgr., NatureWorks

NatureWorks recently announced the commercial availability of two new Ingeo™ high performance biopolymer grades designed for fiber and nonwoven applications. The two grades deliver lower shrinkage, faster

crystallization, and higher melting points across the broad range of manufacturing processes used to produce fibers and nonwoven fabrics. The new grades provide broader processing windows and extended performance capabilities that should further

Ingeo opportunities in filtration applications.

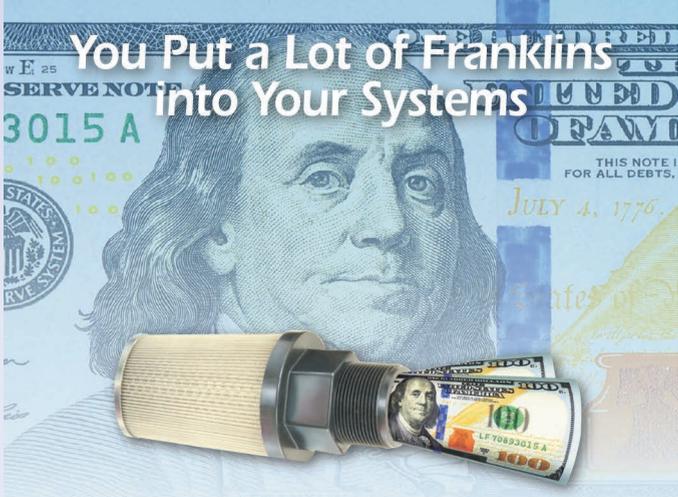
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Ingeo biopolymer offers significant advantages in terms of availability of supply, price, performance, and low carbon footprint. The 150,000 metric ton capacity NatureWorks facility in Blair, Nebraska, polymerizes lactic acid, produced via a proprietary fermentation of sugar (dextrose), into Ingeo polylactide. NatureWorks produces and sells more than 15 different Ingeo grades each with chemistry and properties tailored to various end markets and applications.

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Researchers at the University of Tennessee in Knoxville compared Ingeo and polypropylene melt blown fabrics produced with submicron fibers. In every sample tested, Ingeo fabrics had the lowest air pressure drop compared with similar diameter polypropylene (PP) fibers. This suggests Ingeo fabrics offer better structure development for small fiber filtration applications like melt blown.

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Electrolux starter kit from store display

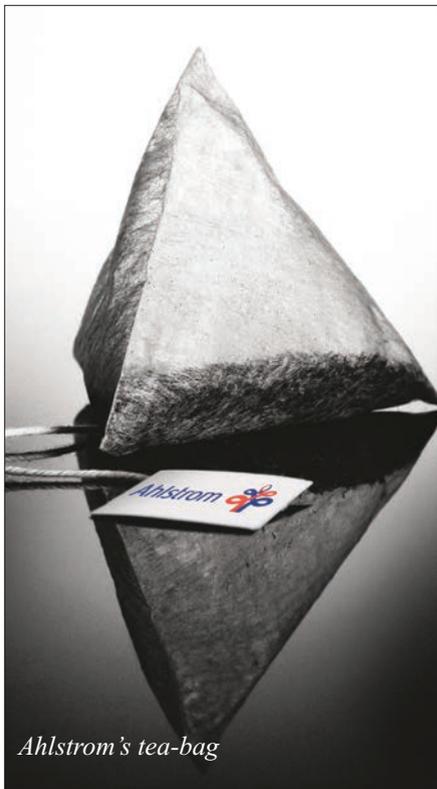
cial application for filtration was the Electrolux s-bag, a consumer vacuum bag estimated to have a 50 percent longer lifespan compared to the typical vacuum bag. The s-bag also required 42 percent less petroleum to manufacture and produced 32 percent less greenhouse gas than the bag it replaced.

Another commercial Ingeo product that shows potential performance capabilities in filtration applications is the Ahlstrom pyramidal-shaped tea bag. These tea bags are made with a lightweight Ingeo nonwoven fabric. In addition to offering the Ingeo environmental benefits, the spunbond fabric does not impart odor or taste to the tea. Further demonstrating how Ingeo



S-bag, one of the most used dust bags

Nonwoven | Filters



Ahlstrom's tea-bag

product can be processed using conventional technologies, the bags are sealed using ultrasonic bonding.

THE NEW GRADES

The new Ingeo grades are interesting for filtration because they give even better dimensional stability than NatureWorks has been able to offer in the past. Additional grades now also provide better melt blown performance.

The new grades broaden the application window for Ingeo use in the production of filtration media, personal care and hygiene products, medical fabrics, civil engineering fabrics (erosion control, reservoir lining protection, etc.), and geotextile and agricultural fabrics.

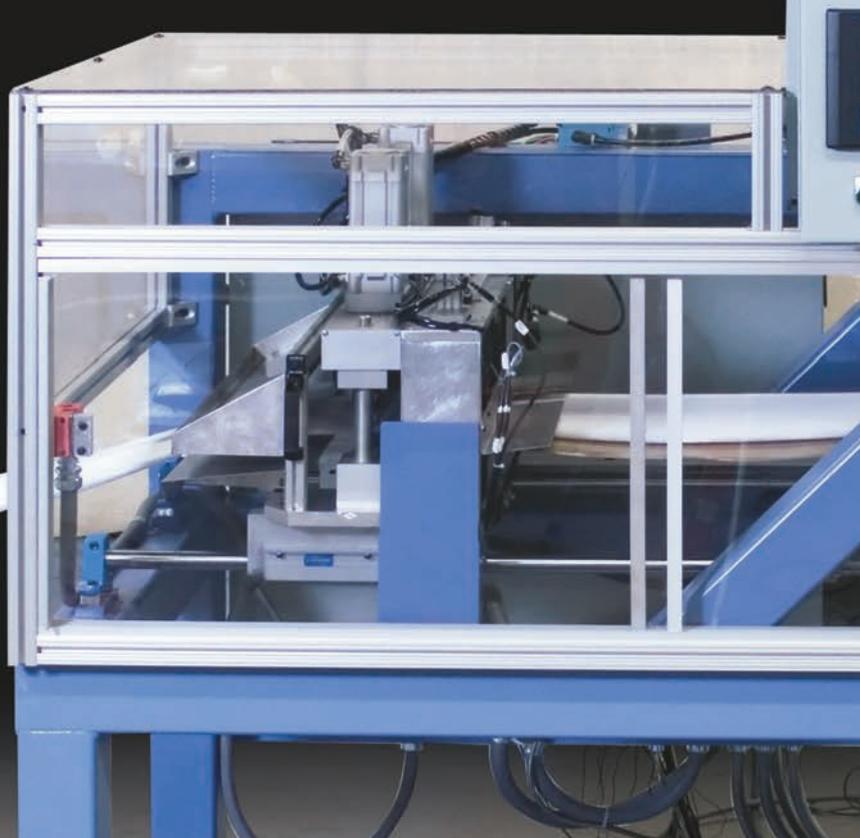
Ingeo 6100D is a mid-viscosity grade designed for spunbond nonwoven and conventional staple fiber/filament melt spinning applications, while Ingeo 6260D is a low viscosity

grade designed primarily for melt blown nonwoven applications. Both grades offer the highest melting points and fastest crystallization rates in the Ingeo fiber grade resins portfolio.

KEY FEATURES

The reduced shrinkage of Ingeo fibers made from 6100D and 6260D leads to improved fabric dimensional stability. These grades deliver increased hydrolysis resistance and offer ~ 30 percent higher stiffness (modulus) at temperatures above their glass transition temperature. Both are capable of higher heat set temperatures, leading to higher melting/sticking points during processing and use. Higher melting point creates advantages in bi-component systems in which the new grades are combined with existing Ingeo low melting point resins. All of these attributes contribute to a larger over-

EXPECT TO BE IMPRESSED!



all Ingeo processing window and greater ease of processing.

SPUNBOND AND FIBERS PERFORMANCE

When new Ingeo 6100D is compared to the existing Ingeo grade 6202D, one of the most often applied grades for fibers and spunbond non-wovens, NatureWorks scientists found:

- Peak melting point increased by 8 C° from 164° to 172°
Melting shoulder increased by 15 C°
- Fiber crystallinity increased by ~ 20 percent
- Quiescent crystallization rate increased three to four times
- Lower stress required for stress-induced crystallization

In spunbond applications, the fibers made from new Ingeo grade 6100D offer a range of desirable performance attributes that make the

new grades ideal for fabrics in geotextile, medical, automotive, and hygiene applications.

MELT BLOWN PERFORMANCE

New 6260D grade for melt blown applications can generally produce fibers in the 2-7 micron diameter range with desirable attributes for a broad range of applications and products. Resultant fiber characteristics can be translated into attributes such as low-pressure drop for filtration media or softness for hygiene applications. Nonwovens shrinkage in melt blown fabric applications will be ~ 80 percent less than what was previously achievable.

In 2004, when Ingeo was just being introduced, the fact that the polymer was made by capturing the carbon in greenhouse gas via a renewable plant material route appealed to many brand owners that desired a more eco-friendly solution

than was available at the time. As the NatureWorks knowledge base grew, additional grades were offered. A well-established channel developed. Brand owners began to see that Ingeo had the performance characteristics and the price stability to answer a host of application needs, not only those related to lower carbon footprint.

The new grades are the result of some of the most advanced bioconversion technology available anywhere, and the performance of these grades makes them highly attractive for filtration and other woven and nonwoven applications. 

For more information contact:

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Cover Story | JCEM



JCEM Digital CNC Blade Pleating Machine

Customer demand for higher quality and output, along with advancements in media technology, have led JCEM to further push the envelope of technology and sophistication with their latest line of Digital CNC Blade Pleating machinery and accessories.

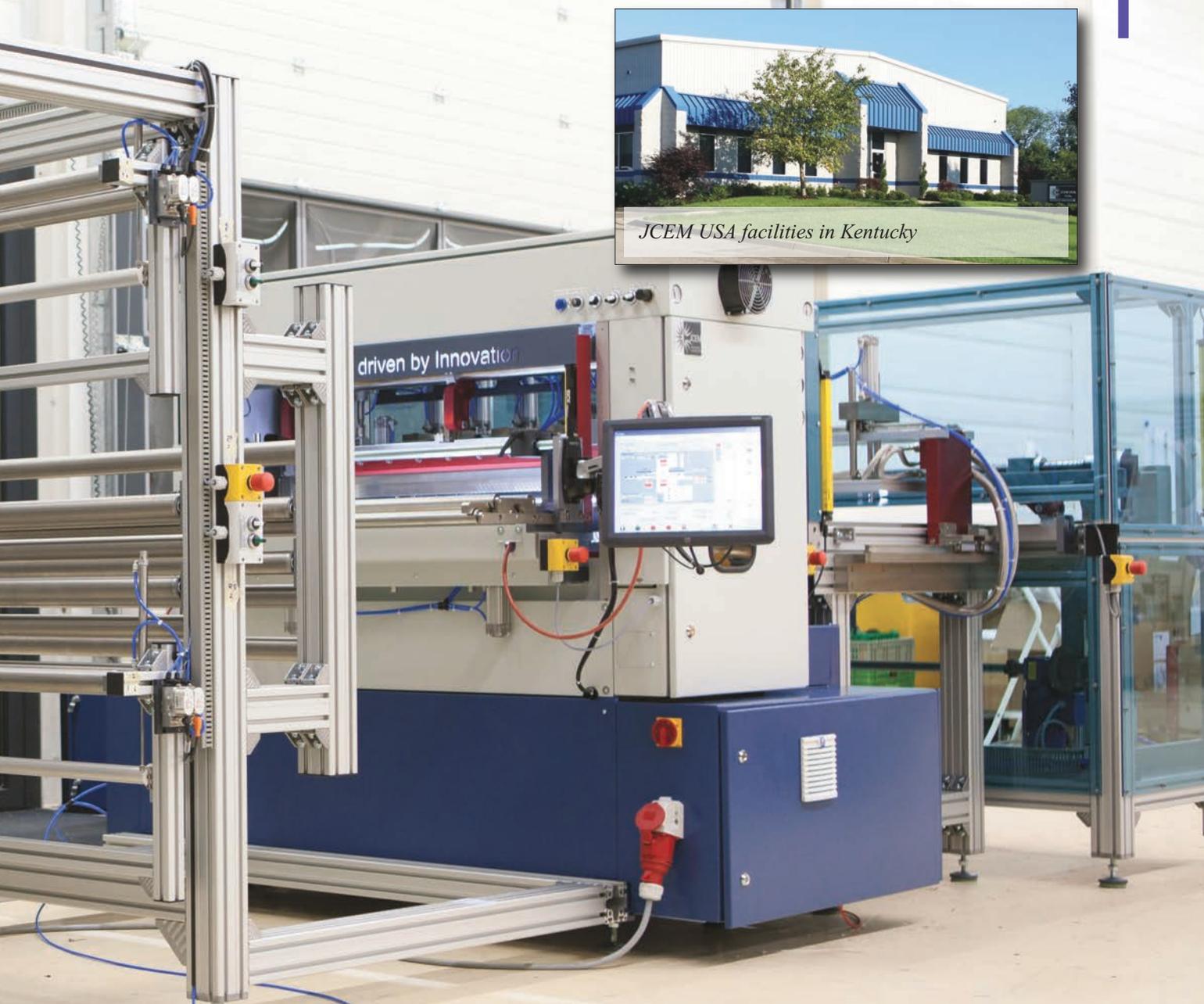
JCEM's focus has remained on designing and building only the highest quality machinery, which provides

customers with constant output for even the most demanding applications. When the important decision for a new pleating system is based on long-term performance, quality, and reproducibility, then JCEM is a clear choice. With nearly 50 years of combined experience in pleating in the USA alone, it's no wonder JCEM has become the go-to source for the top names in the industry.

SHOWROOM, SALES, SUPPORT, PARTS

JCEM USA, LLC, an exclusive distributor of JCEM CNC Blade Pleating Machine and Peripherals has moved into their brand new location in Simpsonville, KY.

JCEM USA fully supports their customers in Canada, the U.S., Mexico and South America by showcasing demo machines for customer trials, while offering interim contract



JCEM USA facilities in Kentucky

achines

4-Layer Cantilever Unwind with Servo-Controlled Dancing Bars for precise tension control, 1.0 Meter JCEM CNC Digital Pleating System with Inline Pleat Pack Cooling Unit and Servo Controlled Shear Cut Cross Cutting System.

pleating and process development services. Highly trained technicians provide both on-site service and remote support. Spare parts can be shipped within 24 hours from a full range of spare parts inventory.

SYNTHETIC MINI PLEAT PROCESS LINE

More and more manufacturers are using synthetic media to replace traditional glass fiber media. In turn,

customers are realizing their existing mini-pleating (glue-bead separators) systems are not capable of pleating these new synthetic materials. Other customers are just now quickly realizing the benefits of using glue bead separators and also want to integrate it into their process. In either case, manufacturers are looking for a rock solid solution to applying glue beads, both continuous and stitch, to more

exotic synthetic medias, which cannot be pleated by traditional rotary pleating processes. For customers who fit into this category, JCEM will demonstrate proven solutions during a setup and personal demonstration of the process. 

**Learn more about JCEM at:
www.jcem.ch**

Eaton Filtration Solutions Helps Manufacturer's Competitiveness While Meeting Regulations

A major German manufacturer of transmissions, drivetrain and chassis components was facing global competition and rising quality expectations from its customers on one hand, and increasingly stringent environmental regulations and soaring disposal costs on the other. The manufacturer's products, which are used in automotive, truck, off-road, railroad, marine and helicopter applications, contain high-precision parts that must be kept scrupulously clean during manufacturing and assembly operations.

That requires state-of-the-art washing systems at various stages during the manufacturing process to remove machining debris, cutting fluids and other contaminants. The washing processes do more than simply clean parts, though: they also impact part quality by producing specific surface conditions required for subsequent operations on the components. All of these washing operations generate

large quantities of washing fluids that have to be either de-contaminated and re-used, or disposed of in an environmentally responsible way, leaving the manufacturer with what appeared to be a choice between economy and ecology.

CHALLENGES

The challenge was to find a solution that satisfied both the need for reduced operating costs and the need to operate in an environmentally friendly and sustainable manner. The manufacturer was already using a filtration system to clean their washing fluids, but the technology of that legacy system simply was not up to the task of meeting today's requirements.

SOLUTION

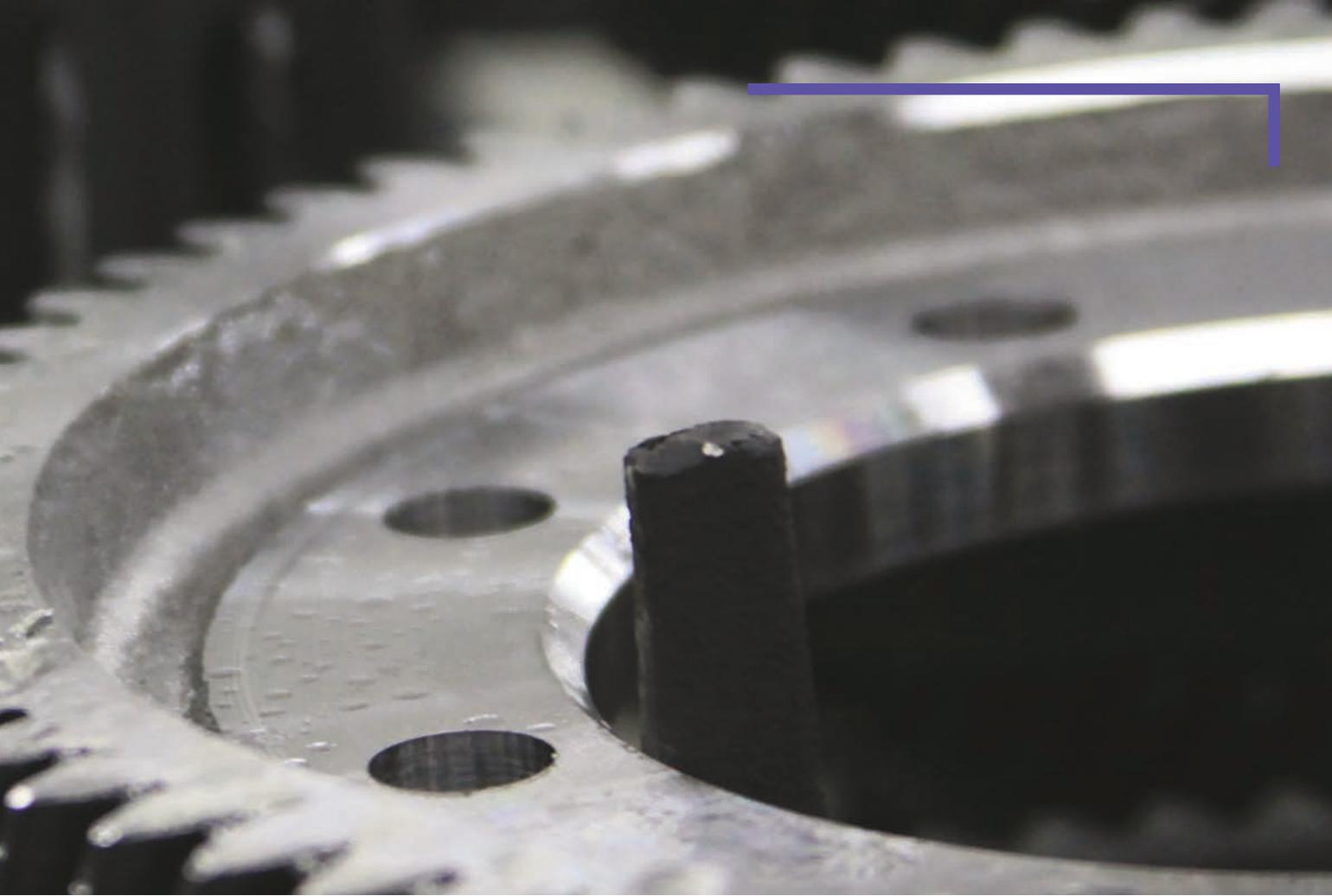
Eaton worked with the customer to replace their legacy system with up-to-date technology that was able to clean the fluids more effectively allowing the fluids to be re-used many

more times than the previous system allowed. The system also retains the contaminants more effectively in the filtration media to reduce the environmental impact of their disposal.

The solution supplied by Eaton is divided into two stages. In the first stage, raw, oily and dirty contaminants are isolated with a coarse gravity-type oil separator. The remaining fluid is then cleaned again in a fine bag-type filter and, if necessary, any remaining oily residues or micro particles are adsorbed in an additional operation.

Eaton engineers worked with the customer and system builder to find the most efficient filter elements for the system. Based on practical testing, the customer replaced their previously used filter bags with Eaton HAYFLOW-Q™ filter element, with magnets and deflectors in Eaton TOPLINE™ bag filter vessels.

The HAYFLOW-Q filter element consists of Eaton's proven DURAGAF™ extended-life filter material

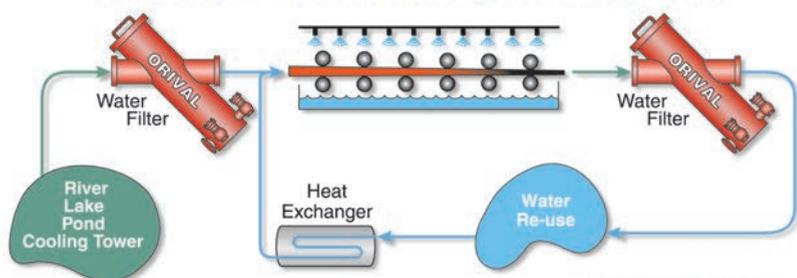


with precision-woven nylon monofilament media. The DURA-GAF extended-life material acts as a high capacity pre- and depth-filter while the outer nylon mesh covers the needle felt and provides final filter retention at 10 μm . The Eaton HAYFLOW-Q filter elements are inserted into the Eaton TOPLINE filter vessels, which use a side inlet and flow through the top design. This produces minimum headroom of unfiltered liquid for easy bag change-out while providing optimum sealing of the filter bag.

Eaton also offered the customer a system option based on LOFPLEAT-HF™ cartridges, which use pleated media construction to provide high total surface area allowing one cartridge to replace several standard elements. This system uses an “inside-out” flow path to achieve higher debris holding capacity while retaining the quick, easy change-out typical of cartridge-type filtration systems.

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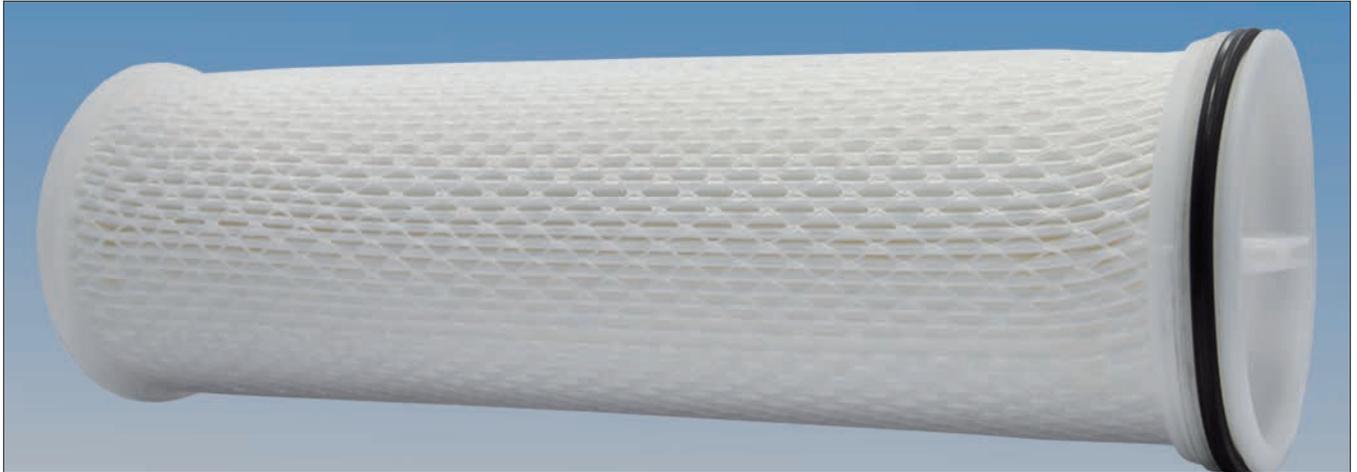


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In the final analysis, the customer chose to stay with bag-type filters since their personnel had extensive experience with that technology.

RESULTS

The customer's new Eaton-supplied filtration system has positively impacted quality by providing more consistently clean fluids for the various washing processes used in their production operations. High-efficiency filtration has also reduced the amount of fluid that has to be purchased annually by significantly increasing the number of times each batch of fluid can be re-cycled through the system.

In addition, longer duty cycles mean that less fluid is eventually disposed of. That, along with the more efficient containment of contaminants achieved by the HAYFLOW-Q filter bags, means the customer's environmental impact is minimized at the same time their profitability and competitiveness is enhanced. Or, as Alexander Bachmann, Product Manager for Filter Bags and Bag Filter Housings of Eaton's Filtration Division observed, "This customer's experience is a clear demonstration of the fact that with the right choice of filtration technologies economics and ecology don't have to be at odds." EN

For more information contact:

Eaton's Filtration Division

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Efficiency Versus Performance

By James J. Joseph

How many times are the terms “speed” and “velocity” interchangeably used when discussing motion? Yet, in the laws of physics they are not the same. The terms are used so loosely that many do not think that there is a technical difference.

On a less sophisticated level, a similar situation exists in the closed loop coolant filtration field with the terms “efficiency” and “performance.” Just like speed and velocity, “efficiency” and “performance” have two different meanings and this article explains why and where they fit. The discussion deals with closed loop, constantly recirculating coolant filtration systems, which have a continuous input of contaminants generated by an industrial process.

Figure 1 shows the two main on-line closed loop systems. This depicts where the contaminants are constantly entering and where they are being continuously removed.

When the flow rate to the cleaning device is equal to the flow rate going to the process, it is called full flow. Or, when the flow rate to the cleaning device is a percentage of the total flow going to the process, it is called side arm or bypass. Although most of the points discussed refer to filters, since they are the most applicable to this logic, other separators could be considered in the same manner.

The interchangeable uses of the terms “efficiency” and “performance” are usually referring to the measurement of the

liquid’s clarity difference between what goes into a cleaning device and what exits. That is correct for “efficiency.” However, “performance” is a different parameter. It considers the ability to remove contaminants from the entire system by combining the filter’s percent efficiency with the total amount of liquid it would handle over a given period. In other words efficiency is for the device, and performance is for the system.®

There are three main axioms in closed loop filtration systems. Explaining these will assist in understanding the difference between efficiency and performance.

Axiom 1: A cleaning device regardless of its efficiency will attempt to reach a point of equilibrium where the amount of contaminant removed by the cleaning device will equal the amount of contaminant entering at the process.

This may be difficult to visualize and a simple analogy is offered, which is a common sight of two boys sitting on a beach with a bucket of water between them. The first boy puts in a shovel full of sand. The second boy tries to remove it with an equally sized shovel. Not very much can be removed at first. They keep doing this until the bucket is so full of sand that the second boy can remove an equal amount. The bucket is very dirty but sand-out equals sand-in and equilibrium is reached.

Axiom 2: Performance is the system’s ability to reach equilibrium by factoring in the flow rate (as a percent of the

process flow) it will handle along with the device’s efficiency. This is the performance factor. For example, if a device is 95 percent efficient and handles 100 percent of the flow it will be able to reach equilibrium much sooner than a similar device handling only 50 percent. Also there are different amounts of contaminants left in the system.

The performance factor of the full flow system with a 95 percent efficient filter is 95. The factor for a 50 percent flow with a 95 percent filter is 47.5.

Figure 2 plots contamination level versus time. As time progresses, the contaminant level climbs to a point of equilibrium. This shows two different levels of performance. The equation for this is:

$$1 + \frac{(100 - \text{Performance Factor})}{\text{Performance Factor}} = \text{Equilibrium Level}$$

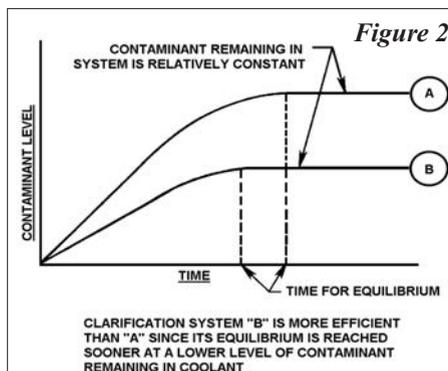
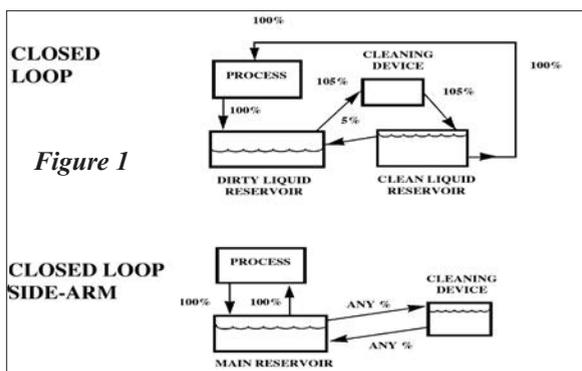
Axiom 3: Even when there is a partial flow through a sidearm filter loop, the cleaning device will eventually encounter the total rate of contaminants introduced at the process. This statement is very important in selecting the size of the filter. A filter handling 50 percent of the flow will not just see 50 percent of the contaminants.

MATH MODELS OF THE EQUATION

To show the differences in efficiency and performance and further explain the three axioms, math models are created for a production process. The process introduces 1,000 units of contaminants for

every interval of production. The interval can be any unit of measure: time, fluid turnover, or production milestones.

Figure 3 tabulates a scenario where the filter is 95% efficient at 100 percent flow. The performance factor is 95 and equilibrium is in 4 intervals.



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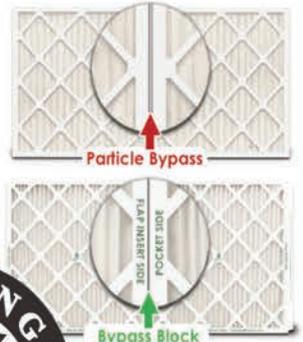
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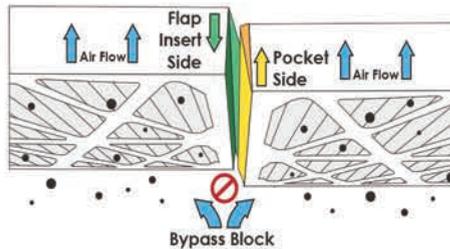
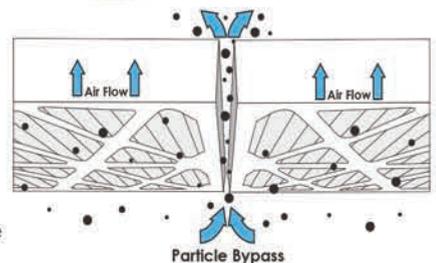
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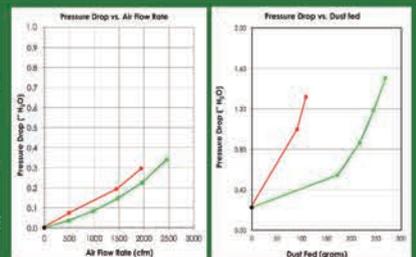
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Coolant | Filtration

Figure 4 is a chart with a 95 percent filter on a 50 percent sidearm. The performance factor of 47.5 and equilibrium is in 15 intervals.

Figure 5 calculates a 50 percent efficient filter on a 100 percent flow. The performance factor is 50 and equilibrium is in 13 intervals.

WHAT GOOD IS THIS INFORMATION?

First, it is important to remember that these are math models of what happens in a closed loop system. As in any model, everything has smooth curves, neat suppositions and easy to follow. In an industrial operation nothing is that neat. There are variables, outside influences and constant changing of efficiencies as the system matures. The curves are wide bands and points are broad clusters.

However, this exercise is a good guide to understanding the phenomenon of closed loop filtration and the differences between efficiency and performance.

This knowledge will aid in understanding the idiosyncrasies of an actual installation. There are many lessons to glean out of this and a few noteworthy points are:

- At equilibrium as shown in the models, the amount removed eventually equals the amount introduced (in red), so are the systems 100 percent efficient? It is possible to look at it that way but it is not true for device-efficiency.
- The amount of contaminants left in the system varies with performance and it is critical to know if the process can tolerate the resulting amount.
- Sidearm systems could be effective alternatives when full flow systems cannot be justified.
- It is possible to mix and match to select an acceptable combination of a filter and flow rate to accommodate an application where there are limits of time, space or money.
- Sidearm systems eventually encounter the full contaminant load as shown in Figure 4, interval 5 in red.
- Contaminant levels actually climb in the early stages of reaching equilibrium.
- It takes time to level off.

James J. Joseph copyrighted the concept of Performance and Performance Factors, August 17, 2014. He is also a consultant and author of Coolant Filtration 2nd Edition, Additional Technologies.

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Williamsburg, Virginia 23185
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Email: josephmarketing@verizon.net

FILTER 95% EFFICIENT - 100% FULL FLOW
CONTAMINANT IN = 1000 UNITS EACH INTERVAL

Figure 3

INTERVAL	IN	TOTAL	REMOVED	LEFT
1	1000	1000.0	950.0	50.0
2	1000	1050.0	997.5	52.5
3	1000	1052.5	999.9	52.6
4	1000	1052.6	1000.0	52.6

FILTER 95% EFFICIENT - 50% SIDEARM FLOW
CONTAMINANT IN = 1000 UNITS EACH INTERVAL

Figure 4

INTERVAL	IN	TOTAL	SENT TO SIDEARM FILTER	REMOVED	LEFT IN SYSTEM
1	1000	1000.0	500.0	475.0	525.0
2	1000	1525.0	762.5	724.4	800.6
3	1000	1800.6	900.3	855.3	945.3
4	1000	1945.3	972.7	924.1	1021.3
5	1000	2021.3	1010.7	960.2	1061.2
6	1000	2061.2	1030.6	979.1	1082.1
7	1000	2082.1	1041.1	989.0	1093.2
8	1000	2093.2	1046.6	994.3	1098.9
9	1000	2098.9	1049.5	997.0	1102.0
10	1000	2102.2	1051.0	998.5	1103.5
11	1000	2103.5	1051.8	999.2	1104.4
12	1000	2104.4	1052.2	999.6	1104.8
13	1000	2104.8	1052.4	999.8	1105.0
14	1000	2105.0	1052.5	999.9	1105.1
15	1000	2105.1	1052.6	1000.0	1105.2
16	1000	2105.2	1052.6	1000.0	1105.2

FILTER 50% EFFICIENT - 100% FULL FLOW
CONTAMINANT IN = 1000 UNITS EACH INTERVAL

Figure 5

INTERVAL	IN	TOTAL	REMOVED	LEFT IN SYSTEM
1	1000	1000.0	500.0	500.0
2	1000	1500.0	750.0	750.0
3	1000	1750.0	875.0	875.0
4	1000	1875.0	937.5	937.5
5	1000	1937.5	968.8	968.8
6	1000	1968.8	984.4	984.4
7	1000	1984.4	992.2	992.2
8	1000	1992.2	996.1	996.1
9	1000	1996.1	998.1	998.1
10	1000	1998.1	999.6	999.6
11	1000	1999.6	999.8	999.8
12	1000	1998.8	999.9	999.9
13	1000	1999.9	1000.0	1000.0
14	1000	2000.0	1000.0	1000.0

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John Fitzgerald, Hollingsworth & Vose, Tuesday, October 14, 8:00 am

Electrospun Membranes: Next Generation Filter Media

Seeram Ramakrishna, National University of Singapore, Tuesday, October 14, 12:15 pm

Recovering Resources and Transforming Water at the Metropolitan Water Reclamation District of Greater Chicago

Louis Storino, Metropolitan Water Reclamation District of Chicago, Wednesday, October 15, 8:45 am

Nanofiber Morphology of Poly Vinylidene fluoride and the Electric Fields Near its Surface

Darrell Reker, University of Akron, Wednesday, October 15, 12:15 pm

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Sieves, Strainers and Reusable Filters

By Dr. Ernest Mayer

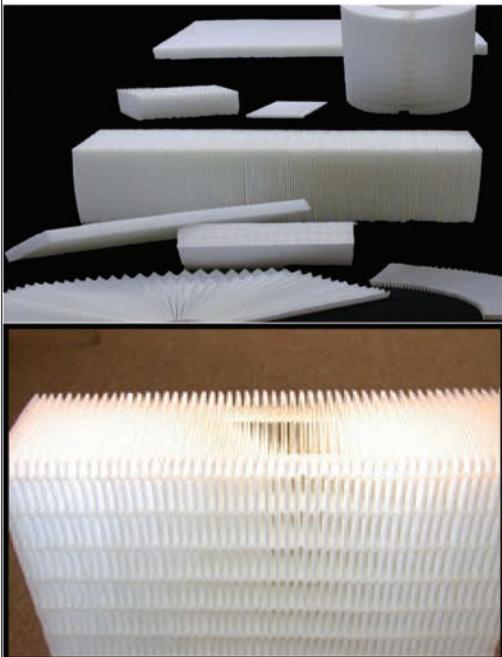
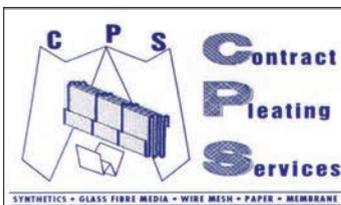
Straining and sludge/process dewatering in industry is normally accomplished by a variety of intake water strainers, by sand filters and by filter presses and automatic pressure filters, as well as centrifuges, belt presses and screw presses. General wastewater removal techniques for industrial streams along with specific nuclear plant wastewater treatments and sintered metal filters are also discussed in this article. This paper will attempt to present an overview of the SLS technologies where sieves, strainers and

reusable filters are used in all industries, including nuclear power.

STRAINERS

Strainers are primarily used for intake waters to remove debris, silt, sand, etc., from rivers, lakes, etc. They generally are backwashed or brush-cleaned by a variety of techniques, but most have greater than 25-micron removal ratings. They generally are used for high flows and very low solids loading to protect operating equipment. Other methods of cleaning the strainer screens or

wedge-wire are vibration, scraping, rotation and even removal from the flow stream and external cleaning (i.e., bar screens as used in municipal wastewater industry). Even simple manual basket strainers can be considered since dual units are generally provided for switching to the clean strainer, removal of the dirty one, washing it to remove debris, and re-installation. Automated strainers can be used to eliminate the manual cleaning operation, but these use some of the filtrate stream to remove the collected debris, which then



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MICROSCREENS

This category involves screens down to about 10 microns for high flow, non-sticky, low solids straining coupled with various devices to clean the screens while continuing to operate [i.e., Ronningen-Petter (Eaton) Russell-Finex, Amiad, Boll, Mahle, Spencer, Miller-Leaman, etc.]. These have found widespread use for cooling towers, food processing plants, municipal and power plants, paper-making, river water debris removal, irrigation systems, etc. The Russell-Finex ECO strainer utilizes a spiral wiping assembly that continuously wipes the entire inner surface of the screen to positively drive away oversized particles and maintain flow rate and low differential pressure. Ronningen-Petter (Eaton) uses sequential backwashing in their standard filter and a Teflon® wiper blade in

their new DCF filter. Amiad utilizes a differential pressure switch to activate a cleaning cycle, which consists of a rotating suction scanner with nozzles about 1/8" from the inside screen where the particles are trapped. The influent pressure and the rotating nozzle scanner create backflow through the nozzles. This cleaning typically takes about 40 seconds. Sandwiched screen layers are used to obtain the lower micron ratings. Other manufacturers use a variety of techniques, primarily cleaning brushes. Nevertheless, these pressure-driven micro screens have made significant inroads into the solid/liquid separation field in all industries. Another micro screen device utilizing perlite filter aid (Neptune-Benson) has found widespread use in the municipal swimming pool and aquarium markets.

BACKWASH FILTERS

This category usually involves

cake filtration onto leaves, plates or tubes along with added filter aid (for both precoating the various media as well as "body-feeding" to enhance the filtration rate and performance). Feed slurry solids loading is usually low (i.e., clarification), but can be high in isolated cases. Media generally tend to be woven cloths, or stainless steel meshes, but micron-rated papers are used particularly in horizontal plate filters. Goretex® and Tyvek® can also be used here since it is well protected in these filters, is reused and provides for excellent cake release. Occasionally depth-type pads are used without filter aid in horizontal plate filters for clarification applications, but then the media has to be replaced manually on a periodic basis. Suitable plate filter vendors are Industrial Filter, U.S. Filter, Sparkler, Funda, Ertel, etc. In general, these backwash filters (excluding those with media pads) are sluiced clean of accumulated debris



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plus filter aid by sluicing nozzles to form a high-solids ~1% backwash for further dewatering/disposal. Occasionally, the vessel contents are purged with air or nitrogen and the cake partially dewatered. The dewatered cake can then be either blown-back or the leaves spun to remove the partially dried cake. Blowback filters are made by Industrial Filter, Pall, Mott, Croll-Reynolds, Vacco, U.S. Filter, Goslin, R.P. Adams, Schenk Funda, Baker Process, etc. Micron removals with these filters are generally from 0.1 to 10 microns.

TUBULAR BLOWBACK FILTERS

This category involves liquid blowback of accumulated solids similar to the concept used in an air-cleaning baghouse. The accumulated solid cake (with or without filter aid) is simply “bumped” off the media by

a short, few second rapid, liquid flow reversal and then allowed to settle in the vessel to form a thickened sludge. This concept was successfully applied by W.L. Gore & Associates in their Gore back pulse filter. Mott employs a similar concept for catalyst recovery in the oil industry as well as condensate polishing in the nuclear power industry. The advantages of these blowback filters is that tight 0.2-3.0 micron media are used to simultaneously clarify the liquid stream to a very high quality and produce an ~5% solid sludge for disposal/recycle. Most importantly, the media is reused and usually lasts between one and six months before the socks require replacement. Recently, DuPont introduced their low-cost SoloFlo™ sock based on Tyvek technology. The Mott tubes are made of porous stainless steel and have been known to last up

to 20 years but periodic cleaning with acids or detergents is usually required. In addition, the Mott design utilizes a patented inside-out filtration, which prevents cake bridging across the tubes (and possible tube breakage during blowback). It also permits in-situ cake drying and easier wet filter cake discharge as a concentrated sludge. These Mott filters have found widespread use in the nuclear power/waste industries. Another outside-in design is manufactured by DrM but it utilizes cloth socks over a unique support tube and can withstand higher pressure.

BACKWASHING MEDIA FILTERS

This category encompasses the entire array of so-called “sand filters” (or deep-bed filters) used in the municipal water and wastewater, oil refinery and production, power



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generation, and industrial process water applications. They are ubiquitous and are used in a variety of applications and comprise many designs from automated to fully continuous. They can utilize sand, garnet, anthracite coal, walnut shells, plastic beads, ceramic beads, etc., as media; and even multi-media like the combined anthracite coal/sand filters used in many industrial applications. They can even remove emulsified oil from industrial and power generation effluents and oil refinery wastewaters. Sand filters typically remove particles down to about 5 microns, but coagulation/flocculation can even remove sub-micron particles and colloids. Solids loading are usually limited to less than about 1000 ppm, but certain designs can handle up to about 2000 ppm. A recent breakthrough in sand filter design incorporates a modular design for improved removal efficiency at even higher loadings (Filtersure).

Flow can be both down or up through the bed, but down flow is usually practiced. Backwashing is usually done with ~20gpm/ft² up-flow flushing, but an air scour can also be used to improve particle removal. Agitation and/or pumping of the sand bed is also sometimes done like in the continuous Parkson Dynasand™ or Arus Stratasand™ designs, but the sand has to be of uniform size to prevent sand segregation. Parkson also has a patented D2 design with two Dynasands in series for giardia and cryptosporidium removal from drinking water. The novel Filtersure modular design mentioned above can even backwash each individual module separately (of 5 normally used) and continue operation throughout the other modules. Thus, one should note that these backwashing media filters (or sand filters) incorporate a wide variety of designs and are used throughout all industries.

BACKWASHING CARTRIDGE FILTERS

These are a relatively new technology developed by the cartridge filter suppliers to offer an alternative to the general high cost of disposable cartridges (both initial cost and disposal). They are simply specially prepared pleated cartridges that attempt to develop a cake on the media surface, which is then backwashed at high reverse flow to remove accumulated cake and clean the media. Typically, 2-10 micron rated cartridges are used, but unfortunately, they do eventually foul and need to be replaced. Leading suppliers are Pall, Parker, Hoffman, etc.

FILTER PRESSES

Filter presses have had a tremendous resurgence in the past 15-20 years with the advent of polypropylene (PP) recessed chamber and membrane (diaphragm) plates. The old, manual plate-and-frame design is now a relic of the past, especially

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since most plants are becoming more automated. In addition, they are generally simpler mechanically and do not have many moving parts (and those that do are low speed).

The first major development was the PP recessed chamber plate (with staybosses to prevent plate breakage), which allowed plate shifting to be automatically done, because the cakes formed between adjacent plate recesses would fall out by gravity. Of course, careful filter cloth selection and maintenance are necessary to assure good cake release. Recent advancement in cake release automation has been introduced in Europe but the most promising in my view is the Netzsch cake-scraper design.

The next development was the now standard 225-psig (15 bar) design, which permitted high pressure

feed pumps to be used for added cake moisture removal (e.g., Abel, Feluwa, Geho, etc.). These high-pressure pumps were maintenance prone, but today sophisticated pumps are available, which are much more reliable. Other disadvantages of this 225-psig "standard recessed" design are its long filtration cycle necessary to obtain dry, firm cakes and the absolute necessity to have sufficient solids to fill the chambers completely (otherwise sloppy cakes will occur).

Flexible membranes (or in reality, non-permeable diaphragms), which are an integral part of the plates, are inflated with either air or water (also up to 15 bar) to compress the cakes. Today, plate designs are available to 30-bar or 450-psig, but they are primarily used in Europe. These membrane plates assure dry, firm cakes

regardless of fill volume (provided at least about 1/3 of the chamber is filled). They accomplish the following: (1) only a low pressure, inexpensive feed pump is required (e.g., centrifugal, Abel EM, single-stage progressive cavity, Discflo, etc.); (2) a much shorter press feed cycle, thus, increasing capacity; (3) eliminates cake thixotropy; and (4) most importantly, permit thorough cake washing to remove cake impurities or to recover more of the valuable mother liquor. In addition, these membrane plate presses improve cake release and produce drier cakes. Most recent dewatering/washing applications have utilized these membrane plate presses quite successfully for both products and wastes. Membrane presses have been used to de-water/wash fine pigments to

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exceptionally low salt ion content (replaced a ten-stage repulping operation, for example).

The key to these membrane presses is the PP membrane plate, which are separately manufactured by German plate companies, independent of the filter press manufacturers. The two leading vendors are Lenser and Klinkau, which almost exclusively supply the USA with PP plates. Other vendors (Hoesch, JVK, etc.) supply rubber membrane plates with a PP body, which are finding more use today because these membranes can be replaced when broken. In contrast, the PP membrane plates are an integrally molded part so that the entire plate has to be discarded in the event of membrane failure. Nevertheless, these one-piece molded PP membrane plates typically last years under normal operation. Recently, both Lenser and Klinkau have developed replaceable PP membrane

plates, which have been widely accepted by the industry (e.g., to eliminate the objection of discarding the entire plate). Klinkau's new "Overhanging" detachable PP membrane plates, which are generally more costly, have 8-12% less cake volume per plate. Klinkau has also developed a corner-feed membrane plate, which eliminates the wash-water channeling and plate failures that occurred with the earlier center-feed plates, which had 4 to 8 staybosses for support. These staybosses and the center-feed eye are exactly where channeling occurs and where most membrane failures have occurred. Most membrane plate presses in the past 20 years incorporate corner-feed plates without staybosses (up to the 1200mm size only while the 1500mm size has only one center stayboss). This corner-feed design results in much better cake washing, slightly drier cakes, better cake re-

lease, and fewer failures due to membrane inflexibility at the staybosses.

In short, filter presses are a versatile pressure filter for producing dry solids suitable for disposal by either incineration or landfilling; and are used throughout all industries. And they are reusable filters since their cloths usually last 6 months or longer and the various filter press designs can incorporate automatic cloth washers to maintain filtration capacity as well as long filter cloth life.

OTHER DEVICES

The three devices - continuous centrifuges, belt presses and screw presses, are ubiquitous in the municipal sewage sludge and water treatment industries. The centrifuge primarily used is the solid-bowl (or decanter), which uses no filter media but dewaterers against a solid wall. Belt presses use open cloths that are washed every return cycle, while screw presses use




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metal screens that are periodically washed with sprays. Nevertheless, these devices can be considered recleanable/reusable filters.

AUTOMATIC PRESSURE FILTERS

Automatic Pressure Filters (APFs) have long been used in the machine tool coolant industry for tramp solids removal and recycling of expensive coolants. They are extensively used in the aluminum can and foil industries as well. They are also far simpler than the traditional three-step process commonly used for wastewater treatment (i.e., clarifier, overflow polishing sand filter, and underflow filter press). Today these versatile APFs can provide low-cost dewatering in a single step to produce dry cakes in an automatic unattended operation.

APF dewatering consists of hori-

zontal plate(s) between, which is a sandwiched filter medium; pump pressure is used to force the slurry into the plate and through the medium upon which the cake forms. In concept, it is similar to the vertical filter presses (or automatic tower presses (ATPs) by Hoesch and Larox) with one key distinction, namely, APFs can use disposable filter media (and can use belts as well), much like a roll of toilet paper fed between the plates, where ATPs use a reusable cloth belt that is wound around rollers, must be tracked, and must be washed each cycle on its return. In addition, because of their design, ATPs filter on both sides of the belt whereas APFs filter in one direction: and ATPs operate up to 225 psig whereas APFs operate at 30-100 psig. As a consequence, ATPs are mainly used to dewater/wash products (i.e.,

mining concentrates, beet sugar, foodstuffs, etc.) whereas APFs are used primarily for wastes, machine tool coolants, aluminum can and foil manufacturing, and a variety of wastewater dewatering applications.

Somewhat similar developments to the ATPs, but in reality are high 15 bar pressure APFs, should be mentioned here. The first is the Filtra-Systems' Verti-Press, which is a lower-cost simpler design, and can use either recleanable cloth belts or disposable media. The second is Pneumapress' unique design, which uses compressed air to both compress and dry the cakes, and is much simpler and more economic than its ATP competitors, Larox and Hoesch. It has found wide acceptance in the mining, biofuel, and wastewater generation industries.

APFs are quite simple, especially



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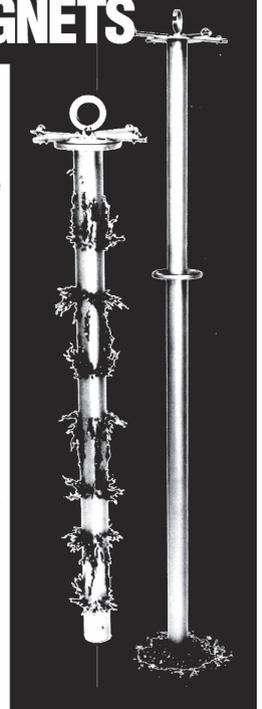
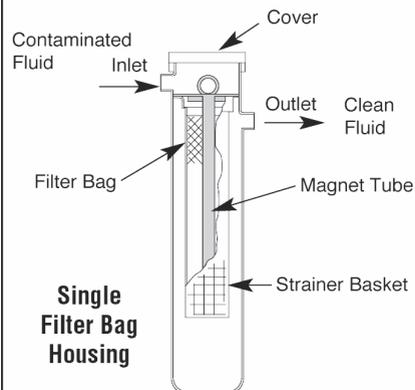
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when used with disposable filter media, since the accumulated cake and media is disposed of each cycle. As a result, belt washing is not required, cloth blinding is eliminated and cake release is assured. The spent media can be rewound for separate-disposal, dumped along with the cake, and can even be doctored, brushed or washed to remove residual cake debris. It can also be rewound back under the plates and reused until it blinds upon which it is discharged. A variety of media can be used depending on the application, but most importantly, its strength is unimportant since a base belt can be used for conveyance. Extreme flexibility in filter media choice is basically why APFs can be used in a variety of applications, particularly for various wastewater applications. In addition, APFs can incorporate cake washing; can be completely enclosed for handling toxic or radioactive wastes; can uti-

lize PLC control for complete unattended operation; incorporate automatic flushing capability for shutdowns; have complete safety interlocking; assure positive dry cake discharge; and can incorporate complete integrated auxiliaries, such as pumping systems, flow controls, filter aid systems, polymer flocculent systems, etc.

Five basic APF systems are available, namely, Filtra-System's Verti-Press, J.R. Schneider's aluminum can coolant and sludge filter as used for geothermal brines; Summit's stacked coolant filter, Pneumapress' high 15 bar pressure APF; and Oberlin's APF. The Oberlin APF is better suited for low wastewater flows, whereas Schneider, Verti-Press and Summit units are better suited for larger volumes and flows where cake washing is required. The Oberlin APF system utilizes a single chamber design with filtration areas up to 50ft², whereas Schneider, Verti-Press and Summit

designs incorporate stacked filter chambers in a single unit with areas up to 1000 ft².

The Pneumapress is simpler and lower in maintenance but is higher in cost. However, it has competed quite favorably with the Hoesch and Larox ATPs, but it is relatively new and will require market demands to dictate its applicability to wastewater dewatering.

Summarizing, APFs are very versatile and are used in a variety of industries.

CONCLUSION

This paper has attempted to address the various pressure filters, sieves, strainers, and other filter technologies that can be used in industry as recleanable/reusable filters. It discusses the primary pressure filters that can be used for both water intakes and wastewater discharges. Consequently, it should only be used as a guide since each application will be different. EN



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Choosing the Right Filtration Equipment for Polymer Melt Lines

By Stefan Vandendijk, M.Sc., Purolator Advanced Filtration

When choosing filtration equipment for polymer melt lines, be it for a brand new line or a modification of an existing line, it is essential to know how the process works and what one is hoping to achieve in terms of performance. Knowing these important criteria is the key to getting the best possible return-on-investment for the application.

ACHIEVING A HYDRAULIC BALANCE

Over the years extensive research has been done on polymer melts and how they interact with filtration media, filter

elements and tube bundles (TB). Based on the works of L. A. Clarenburg and H. W. Piekaar [1, 2] and J. D. Trentacosta [3], notable experts in the field of polymer filtration, engineers at Purolator Advanced Filtration developed a proprietary math model that helps producers of polymer products to determine the right equipment to achieve a hydraulic balance of the flow inside polymer vessel and a tube bundle. This balance will lower the clean differential pressure (DPC) and eliminate gel generation zones in the polymer melt flow, which will lead eventually to a higher throughput and longer

on-stream life of TB arrangement at the same filtration area. But how does it work? And how can Purolator's model bring economic advantages?

THE IMPACT OF THE FILTER SYSTEM

This model presupposes depth filtration and the use of Purolator's Porofelt® sintered metal fiber media and tube bundles.

- Lowering clean differential pressure (DPC)

Porofelt media is a multilayer media with a highly developed capillary structure. This will help to capture and keep impurities inside the media before it will be fully loaded inside and start to work as a regular surface filtration media. The dirt loading characteristics of Porofelt media can be graphically represented by the curves shown in Figure 1. As can be seen, the first curve shows the dirt loading and on-stream life of a TB, which was not well balanced from the flux distribution point of view. The second curve shows the same filtration system, but with a re-designed TB. One can see substantial increase in on-stream life.

A typical TB comprises three main elements: a tube sheet, retainer plate and about nineteen filter elements. The filter elements are installed in concentric circles on the retainer plate. This is the best pattern to produce an equal flow distribution to each filter element.

The TB has typically four different flow passages:

- The passage between filter elements in a last row of elements and ID of a vessel
- The passage between four adjusted

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- filter elements
- The passage between three adjusted filter elements
- The flow inside of a filter element

All available filter areas need to be used to equalize the polymer melt velocities in all four zones. In order to achieve this, a TB needs to be designed so that it perfectly balances the polymer melt flow outside the filter element with the flow inside. Only when a balance is reached, the filtration area of the elements inside the TB unit will be fully used in the polymer melt filtration. If not, only part of the available filtration area will be used. This will slow down the filtration process, increasing the amount of impurities as well as differential pressure and re-directing the polymer flow to the cleaner (less resistant) parts of the filter element.

Figure 2 shows the flux distribution along the length of a filter element. As one can see there are various flows with different degrees of distribution. This variation is the result of whether the

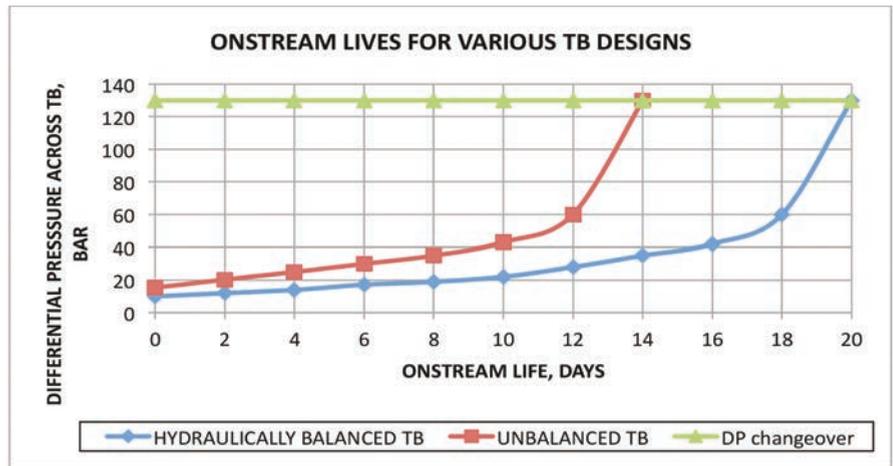


Figure 1

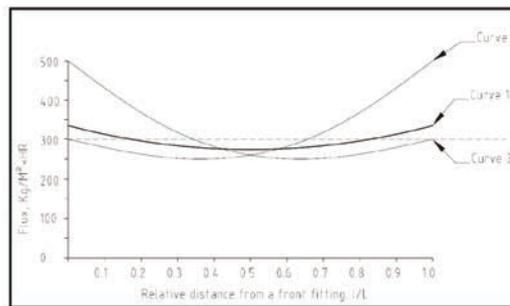


Figure 2

- Curve 1 represents equal flow distribution; the whole available filtration area of a filter element is taking part in a filtration process.
- Curve 2 represents a partly restricted filtration area. The main reason for this is the use of wrong sized flow areas in regions 1, 2 and 3.
- Curve 3 represents a mainly re-directed flow to the front of the filter element. The cause of this imbalance is that the flow area in region 1 is too open and the flow area inside filter element (region 4) is too restricted.



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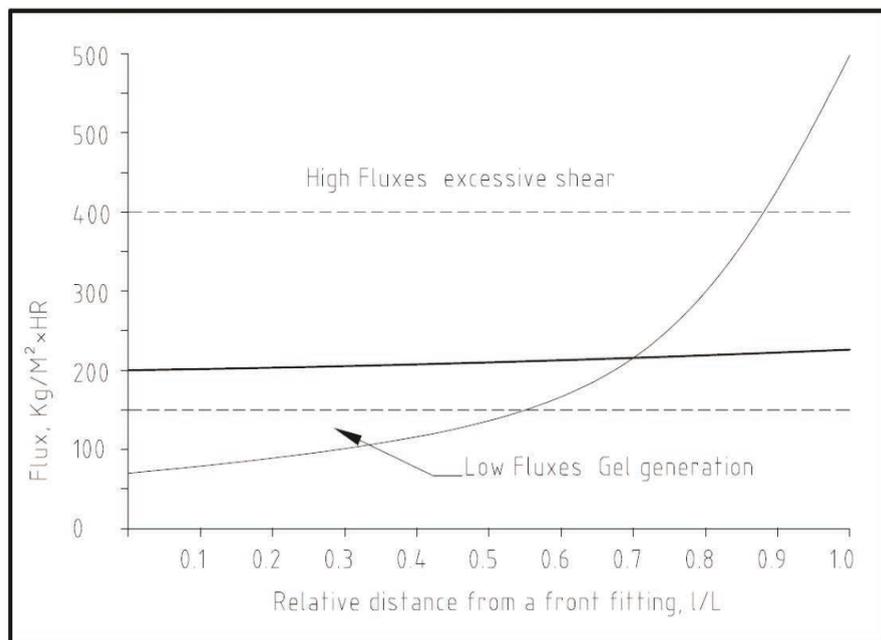


Figure 3

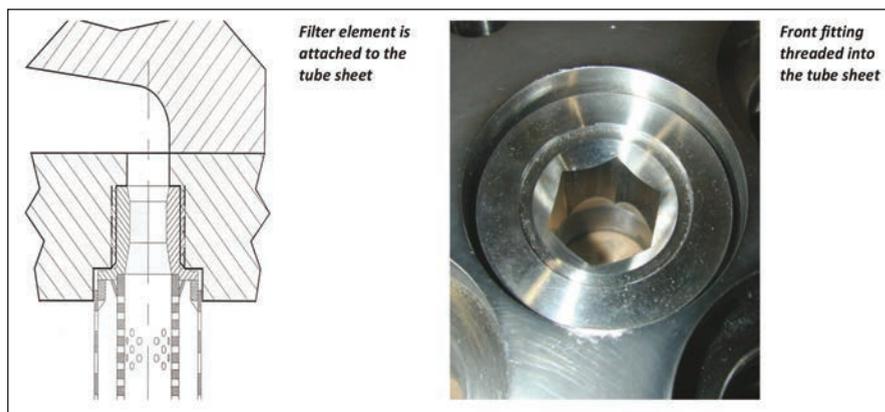


Figure 4

right type of TB design was used or not.

This graph shows that the design of the TB significantly affects the flow of the polymer melts inside regions 1 to 3. Curves 2 and 3 show local fluxes in some areas of the filter element that are considerably higher than the average flux, shown by curve 1. As a result of the imbalance, the clean differential pressure of the filtration system will be considerably higher and the on-stream life will be artificially shortened.

• Eliminating Gel Generation Zones

For this paper gels as small amorphous resin particles that differ from

their surroundings by being cross-linked and/or having a higher molecular weight will be identified. In polymer melt filtration gels are usually classified as “hard” or “soft.”

Cross-linkage and gel formation can be caused by:

- Problems with reactor or extruder
- “Dead” zones in piping, valves and auxiliary equipment
- “Dead” zones in filter vessel and in filter elements

These problems are usually the consequence of exposure to high temperatures (thermal degradation). This paper

focuses in particular on eliminating dead zones.

In a filtration vessel hard gels, which are generated downstream of the filter elements, will be removed by the filter media like any hard contaminant (metal, dust, etc.). However, the soft gels could change shape and pass through the media, causing an increase in differential pressure. They may end up in the effluent and affect the quality of the final product or the on-stream life of the final filters like spinpacks, etc. Both types of gels can overload the filtration media, decreasing on-stream life of a TB.

Purolator’s Porofelt media was especially designed to capture and hold both hard and soft type gels during filtration process. In combination with the right TB design, the number of dead zones is considerably lower than with any other type of depth filtration media on the market today.

Figure 3 shows how a wrong TB design would have an adverse effect on a quality of effluent by introducing excessive shear with very high fluxes and gel generation with very low. The most important areas are in an effluent pass, inside filter element and outside the tube sheet where effluent is re-directed to outside piping.

When designing the flow passes for a polymer melt, one should be aware that filter vessels usually have a considerably larger ID compared to the inlet and outlet piping. Hence the very low Reynolds Numbers inside the vessel ($Re \ll 2$) and a tendency to develop gels if flow pass is interrupted. But there are more solutions that should be used besides the design for balanced flux distribution. The most important one includes creating an arrangement that has no “dead” zones (low velocity) in places where filter element is attached to the tube sheet (Figure 4). In this case, the front fitting has an internal hex and metal-to-metal sealing surfaces on its front lip. This causes the polymer (or residual air or gas) to pass through the media, the core and a front fitting into outside piping.

By paying attention to all aspects of designing an uninterrupted melt flow passage inside the filter vessel an engineer will practically eliminate all gel formation on the effluent side. This is exactly what can be achieved with Purolator's custom-made design software.

- Achieving a higher throughput and longer on-stream life with the same filtration area

The Purolator filter design software also enables us to analyze existing TB configurations and to propose modifications, if necessary, at minimum investments. This means a new and improved tube bundle that will fit exactly in the place of an existing one will be designed.

Let's take a look at the example from an extended portfolio of modifications done by Purolator Advanced Filtration.

This particular customer had an old

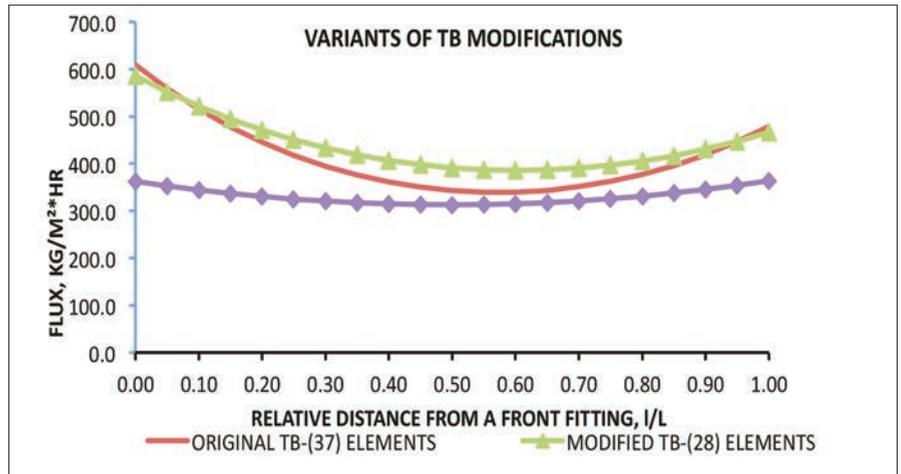


Figure 5

polymer filtration system installed in PET resin production lines. The analysis of the system showed an uneven flux distribution that resulted in very high fluxes in some areas and comparably low fluxes in other areas of the filter elements. The very high flux/flow variations in and out the filter element

resulted in very high local fluxes and comparably high clean differential pressure. The final result was a short on-stream life of only fourteen days.

To improve the system, Purolator's engineers proposed two solutions: one was to keep the existing vessel and just replace the tube bundle inside; the

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Description	Existing TB	New TB only	New vessel & TB
Flow rate, kg/hr	11200	11200	11200
Viscosity, Pa*s	200	200	200
Vessel ID, mm	381.0	381.0	483.0
Filter element ID, mm	26.3	31.0	38.0
Filter element OD, mm	50.0	56.2	63.5
Filter element active length, mm	1226.0	1275.0	1016.0
Filter element filtration area A_E , M^2	0.74	0.95	0.92
Number of filter elements in TB	37	28	37
Total filtration area per TB A_F , M^2	27.2	26.6	34.0
Flux profile variation outside of filter element, %	66.0	49.0	15.5
Flux profile variation inside of filter element, %	58.5	51.0	24.3
Maximum flux value, $kg/M^2*hr.$	609.5	573.6	363.3
Minimum flux value, $kg/M^2*hr.$	340.0	367.2	313.0
Clean differential pressure DP_C , bar	15.3	12.6	6.9
Onstream life, days	14.0	20.0	26.0

Table 1: Examples based on Purolator Porofelt 40 micron media

Media	Filter rating, μm ABS.	Porosity, %	Thickness, mm	Planar weight, g/m^2	Dirt Holding Capacity, mg/cm^2
20AL3	20	82	0.49	750	19.0
20BL3	20	80	0.19	300	7.5
20CL3	20	86	0.74	900	19.0
20CL4	20	73	0.40	900	17.0

Table 2: Comparison of the main characteristics of the Porofelt media listed on page 39

other was to build a brand new vessel with dedicated tube bundles. Figure 5 shows the flux distribution along the relative length of the existing and new filter elements.

The original tube bundles of the existing system had thirty-seven filter elements. The modified tube bundle has twenty-eight elements with room for nine more in the new filtration vessel.

The performance of this new system is shown in Table 1.

While analyzing the data and graphical representation of the flux distribution in the existing TB configuration, it is evident that the polymer flows at fluxes considerably higher to the front fitting of a filter element, where it is threaded into the tube sheet. This means that 400 mm to 1000 mm of the central section of the candle is not

working up to its full potential, causing the more active area of the filter element to clog up faster. This will increase the flow resistance significantly causing the polymer flow to shift to a comparably cleaner area of a candle with less hydraulic resistance. In short, this arrangement will result in a premature filter element failure.

In order to minimize the expenses, it was decided to change only the tube bundle design (tube sheet, filter elements and a retainer plate). The new tube sheet had a different holes pattern allowing the use of larger ID filter elements to lower the flux profile variations inside the new filter element. However, due to limitations of the existing vessel's ID, the number of elements was limited only to twenty-eight. The existing baffle plate on the polymer

melt inlet was no longer necessary because due to the very low local velocities it was no longer doing its job. By removing the baffle plate from the bottom portion of the existing vessel, designers were able to add an extra 49 mm to the effective filtration length of the filter elements (see Table 1). This approach decreased the percentage of flux profile variations and DPC.

The field test showed an increase of 22% in on-stream life with minimum capital expenditures.

Figure 5 and Table 1 clearly show that the best flux distribution would have been obtained had the designer had the freedom to design the TB arrangement without the limitation of the existing filter vessel limitations (ID and length, in this case). The calculated result shows a sharp increase

of 122% in on-stream life of the filtration system.

COST OF VARIOUS FILTRATION MEDIA

Every now and then a plant engineer may find himself in the position of needing to select filtration media for a new product or upgrade. Purolator engineers have an extensive worldwide customer base and are assisting in dealing with such types of decisions on a regular basis.

There are a few standard aspects that play a role in determining the right type of media:

- The final product: resin, fiber, films, etc.
- The physical size of a final product: filament diameter, film thickness, etc.
- The size and nature of additives used in production of polymers
- The differential pressure across the media at changeover

In case the filtration system has already been chosen and the plant engineer is facing questions of what kind of media should be acquired for his particular system, Purolator has several media products that will result in exactly the same filtration rate. So, which media is best?

Let's take the example illustrated by Figure 5 and assume a well hydraulically balanced system with a TB that has thirty-seven filter elements. The original curve shows filter elements that contain Porofelt 40® micron filtration media. For the sake of the next example, assume a filtration rate of the media to 20 m ABS due to a new final product (fiber, for example). The plant engineer would have the following choice of filter media from Purolator in this filtration rate:

- Porofelt20BL – pleatable, non-graded pore structure
- Porofelt20AL – pleatable, graded pore structure
- Porofelt20CL3 – pleatable, graded pore structure, high DHC
- Porofelt20CL4 – pleatable, graded pore structure, high DHC, non-compressible

In general, the more fibers there are in the media, in other words, the higher the planar weight, the more expensive the media is. This is why people tend to choose a less expensive media with the same filtration rate. However, the Dirt Holding Capacity (DHC) of 20BL3 media is less than 50% of the rest of the media, meaning that the on-stream life of filter ele-

ments with comparable active filtration area will be considerably shorter.

Let's assume that a plant engineer would not need to over-pressurize the media, trying to increase on-stream life. The curves in Figure 6 are comparable loading curves for a well-designed (37) filter elements TB, which may be used as an illustration of on-stream life of the same tube bundle, but with various

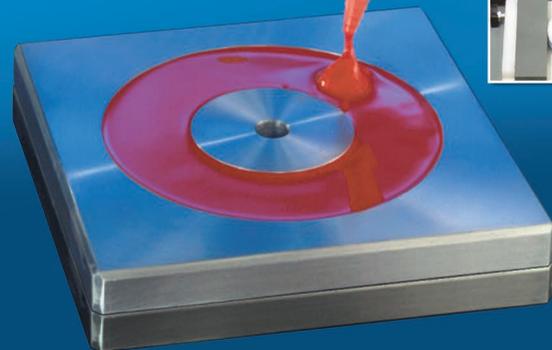
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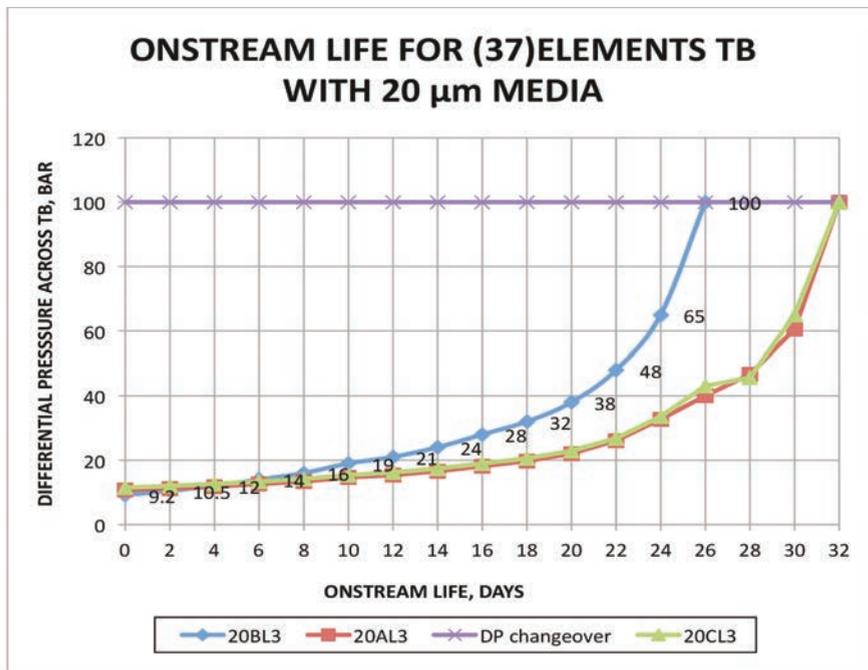


Figure 6

Description	Purolator 20 micron BL-non- graded	Purolator 20 micron AL-standard graded	Purolator 20 micron CL-custom graded
Number of elements in TB	37	37	37
Filter element filtration area A_{Ei} , M^2	0.92	0.92	0.92
Total filtration area per TB A_{Ft} , M^2	34.0	34.0	34.0
Cost of filter elements per TB	\$12,000	\$18,000	\$27,000
Number of cleanings per year per TB	10	5	5
Cost of TB cleaning per year	\$15,000	\$7,500	\$7,500
Cost of changeovers per year	\$30,000	\$15,000	\$15,000
Cost of filter elements replacement per year	\$36,000	\$30,000	\$30,000
Total Cost of Filtration (TCF)	\$93,000	\$70,500	\$79,500

filtration media.

Using the same approach as in Table 2, one can arrive to a total cost of filtration (TCF) that consists of the three media mentioned above. Flow rate, filter vessel and filter element's parameters are the same as in column "new vessel and TB" of Table 1 above.

CONCLUSION

Over the years the efficiency of Purolator's customized flower design head and rotating valves has been confirmed by several satisfied customers. As experts in filtration technology,

Purolator can rely on its unique range of sintered media, filter candles and a sophisticated flux profile calculation system. As true partners in filtration innovation, the company works closely together with customers to create a filter solution that meets the exact needs and requirements in terms of performance and cost.

Stefan Vandendijk is Technology Manager at Purolator Advanced Filtration (formerly Bekaert Advanced Filtration) in Sprimont, Belgium. He holds a Master of Science degree in electro mechanical engineering from

Hogeschool in Limburg and Specialization in Rheology from the University of Leuven, Belgium. He also has 25 years of experience in polymer and process filtration, and is a former President of Southwest Filtration.

REFERENCES

- H. W. Piekaar and L.A. Clarenburg, Chem. Engineering Science, 1967, Vol. 22, pp. 1399-1408.
- L.A. Clarenburg H. W. Piekaar, Chem. Engineering Science, 1968, Vol. 23, pp. 765-771.
- J. D. Trentacosta, Polymer Engineering & Science, 1980, Vol. 20, Issue 2, pp. 149-154.
- Dan D. Edie and Charles H. Gooding, Ind. Eng. Chem. Process Des. Dev., 1985, pp. 8-12.

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Demand for Consumer Water Treatment Systems in China to Grow 17% Annually

Demand for consumer water treatment systems in China is projected to advance 17.0 percent per year to 26.2 billion Yuan in 2017. According to analyst Toni Niu: "Consumers in China are becoming increasingly aware of the need for supplemental water treatment to ensure that even the municipally treated water they consume meets health standards." Rapid industrialization and economic growth coupled with an insufficient water treatment infrastructure will continue to prompt Chinese consumers' concerns about water contamination and inferior tap water quality. These and other trends are presented in Consumer Water Treatment Systems in China, a new study from the Beijing office of The Freedonia Group, Inc., a Cleveland-based industry research firm.

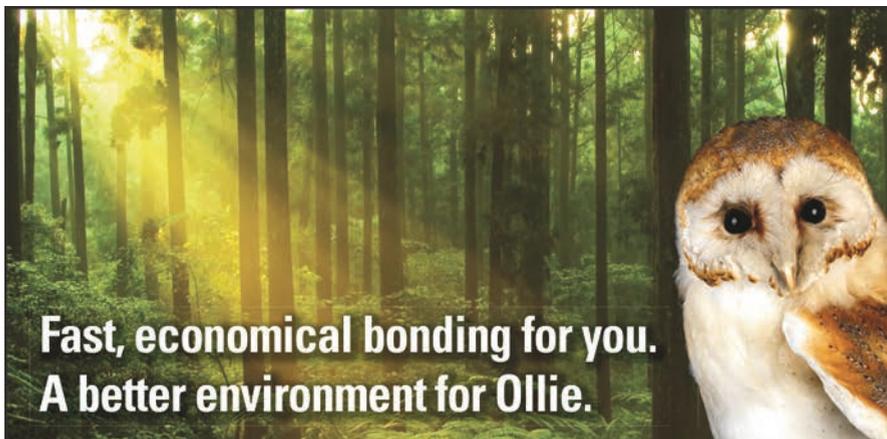
Greater awareness of the health and aesthetic benefits provided by water treatment systems will result in double-digit annual growth in demand for these products in China for the foreseeable future. Continuing increases in disposable personal incomes will provide fundamental support for the gains. This elevated purchasing power is boosting market penetration for consumer water treatment systems, especially in urban locales. However, further gains will be limited by the habit of many consumers in China to boil water prior to consumption in the belief that boiled water is safe enough to drink.

Point-of-use systems (POU) will continue to account for the larger share of value demand due to their greater operational flexibility and lower costs. Sales of POU water treatment systems in China are expected to grow at an annual pace of 16.6 percent through 2017 to 23.4 billion Yuan, accounting for nearly 90 percent of the overall market. Faster growth will be registered by countertop and under-sink systems, a large share of which use membranes and other nonconventional filtration technology, offering water treatment superior to flow-through and faucet-mounted systems. However, increasing shares of households are expected to install point-of-entry (POE) systems.

Growth in new housing construction spending will support sales of these whole-house water treatment systems, since they are more often installed in newly built homes than in home improvement activities. Moreover, to achieve better water purification results, POE and

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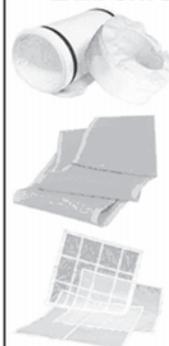
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Title of Publication: *International Filtration News*

Date of Filing: 10/1/2014 - Publication Number: 1078-4136x

Annual Subscription Price: \$125.00 - Airmail: \$125.00 - Free for qualified people

Owner: **International Media Group, Inc.**
 Mailing Address: 6000 Fairview Road, Suite 1200, Charlotte, NC 28210
 Known Stockholders Owning or Holding 1 percent or more of the total amount of stocks:
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Publication: *International Filtration News* - Issue date of circulation data below: August, 2014

Extent & Nature of Circulation:	Average No. Copies Each Issue	Actual No. Copies Single Issue
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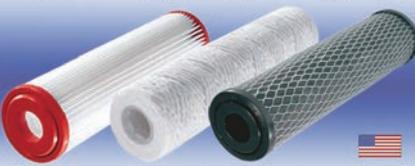
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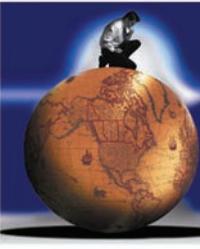
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Complete Flexible Pleating Production Lines

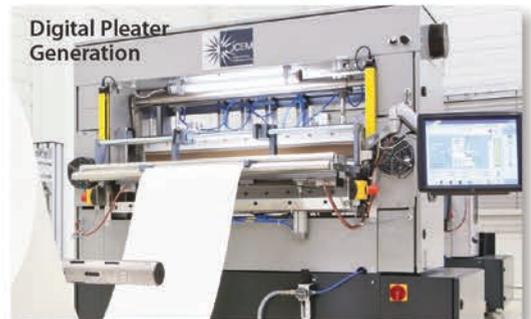
Additional peripheral equipment up to complete production lines have been successfully engineered and installed and can be added at any time as part of our modular concept solution. This includes various multi-layer unwinding stations both stationary and cantilever/ side-loaded with optional dancing rollers or free looping control. Servo-driven inline slitters are available for multi-layer wire mesh, servo-driven longitudinal inline ultrasonic slitting and perforation devices, pneumatic crush cut perforation device, post pleating equipment such as an inline vertical package cutter for multi-layer wire mesh pleat pack production are available. Post pleat pack production and various cross cutters, crush cut or shear cut principle in pneumatic and servo motor driven versions add additional flexibility and capacity. Special machinery can be engineered and added upon customer request.

Hands-On Demo Trial
Call 502-722-3740 Today



Swiss Quality

JCEM stands for the highest technology, top Swiss Quality machinery and delicate custom-made engineering capabilities from single machines to complete production lines.



Digital Pleater Generation



Multi-Layer Roll Stands



6 Layer Stainless Steel Pleat Pack
Pleat Height 4.5mm pleated with
200 pleats/min



Modular Concept
Production Lines



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