

MARKET SEGMENT BROCHURE: HEALTHCARE

PROTECTING THE AIR IN HEALTHCARE FACILITIES

IMPROVE INDOOR AIR QUALITY, PROTECT CRITICAL
EQUIPMENT AND ELIMINATE ODORS IN THE FACILITIES
THAT CARE FOR US



purafil
Filtration Group®

PROTECTING PATIENTS AND EQUIPMENT



PROTECT PATIENTS & STAFF FROM OUTDOOR POLLUTION & EXHAUST

Maintaining a comfortable environment at a healthcare facility can be difficult. By controlling both indoor and outdoor sources of airborne pollution, you can ensure a safer, healthier and more comfortable environment for patients and staff. Outdoor sources of pollution—such as helipads, incinerators, loading docks, ambulances and waste disposal units—are typically on the roof or the back of the building near Air Handling Units (AHUs). A standard particulate filter will not prevent the exhaust odors, VOCs and toxic gases from entering your facility.

Purafil Solution: Jet & Diesel Exhaust and Outdoor Pollution & Corrosion Blends, Canisters, Modules

CAN YOUR PATIENTS AFFORD TO WAIT UNTIL YOUR EQUIPMENT'S REPAIRED?

We don't often consider the critical machines and equipment we use to save lives at hospitals or how corrosion could impact our ability to help patients. However, without proper air filtration units, highly polluted outdoor environments can cause corrosion and impact indoor air quality. The Restriction of Hazardous Substances (RoHS) regulations have made a positive environmental impact but can cause problems with circuit boards. Because lead can no longer be used, circuit boards are much more susceptible to corrosive gases.

Electronic equipment such as CT scanners and MRI machines could fail due to corrosion. This is a common problem in countries where Air Handling Units (AHUs) with outdoor air intakes are located near sewage treatment plants (STPs). Hydrogen sulfide (H₂S) at the STPs accelerates corrosion further, causing eventual failure. Many hospitals report reoccurring failure in their CT scanners and MRI machines due to these conditions. When there's a limited number of these critical machines in such hospitals, their failure is even more concerning.

Purafil Solution: Outdoor Pollution & Corrosion Blend, Purafil V-Bank, Canisters, Modules

HIGHER QUALITY AIR COULD MEAN HIGHER IVF SUCCESS RATES

Airborne Molecular Contamination (AMC), the presence of contaminants in the cleanroom, can have devastating effects. Factors that contribute to AMC in cleanrooms include outdoor air, fugitive emissions from process equipment, chemical storage areas, accidental spills and off-gassing from building and construction materials. AMC in IVF labs cause a threefold decrease in success rates. Address the issue by installing filtration systems, which have been proven to increase pregnancy rates and positively impact lab operations.

Purafil Solution: Side Access System (PSA), Cabinet Unit (PPU), Purafilter, Purafilter HE

PURAFIL PROVIDES FRESH, CLEAN AIR



PURAFIL PROVIDES CLEAN AIR TO A CHILDREN'S HOSPITAL

One of the largest pediatric hospital networks in the U.S. was experiencing air quality issues at one of their buildings. Both doctors and patients had complained about a strong diesel odor in the Operating Rooms (OR). They worked with Purafil to identify the source of the odor, which was the HVAC air intake system. The HVAC system is located near the hospital helipads, loading dock and parking deck. The HVAC air intake was pulling vehicle exhaust fumes into the building and OR suite HVAC system.

The existing filtration system did not effectively filter the harmful and unpleasant diesel exhaust fumes. Diesel oil has more than 30 components that can cause cancer, according to the International Agency for Research on Cancer, so it was a top priority to remove the fumes. After evaluating the problem, Purafil retrofitted side and front access scrubbers with our patented chemical media.

Since installation over a decade ago, there have been no air quality complaints. They have remained a valuable customer, incorporating Purafil's solution and design in each new facility.

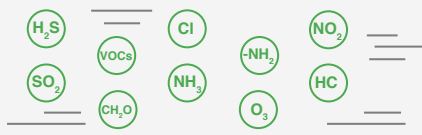
Purafil, Inc. is the leading manufacturer of filtration media, scrubbers, and monitors to provide a safe and comfortable environment. Our products and solutions identify and remove harmful and unpleasant particles, gases, odors, bacteria, and viruses from the environment. The results are increased comfort levels, reduced corrosion, and confidence that your healthcare environment will provide an ideal patient experience.

PURAFIL'S MEDIA ADVANTAGE

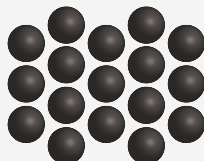
WHEN ONE-SIZE-FITS ALL JUST DOESN'T WORK

Are you ready for a custom solution that thoroughly eliminates the gases that activated carbon leaves behind? A one-size-fits-all solution won't cut it, which is why Purafil specially engineered custom blends designed to address the unique problems you face while *permanently* removing gases—even the ones carbon can't remove. This is done through chemisorption, a process that chemically transforms gases into harmless solids that remain trapped inside the media.

Problem Gases In The Air Stream



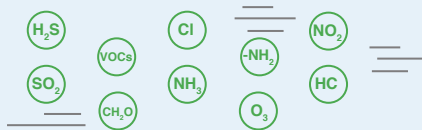
Activated Carbon



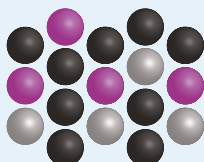
Gases Carbon Fails to Eliminate:



Problem Gases In The Air Stream



Purafil Custom Media



Purafil Peace of Mind



JET & DIESEL EXHAUST BLEND:

Removes diesel fumes and helicopter exhaust, providing patients and staff with a safe, clean environment. The World Health Organization (WHO) shows that exposure to nitrogen oxides can cause irritation of the eyes, skin and respiratory system, headaches, difficulty breathing and asthma. This blend removes common exhaust gases including H_2S , NO_2 , SO_2 , HC , VOCs and CH_2O .

BATHROOM ODOR & AMMONIA BLEND:

Removes common bathroom odors, including urine, ammonia and chlorine. Trust Purafil's custom blends to protect patients and provide an odor-free room. The Center for Disease Control and Prevention cites coughing, eye irritation, burns on the throat, skin, eyes and lungs and even lung disease as common symptoms of ammonia exposure. This blend removes bathroom gases including H_2S , NH_3 and -NH_2 .

OUTDOOR POLLUTION & CORROSION BLEND:

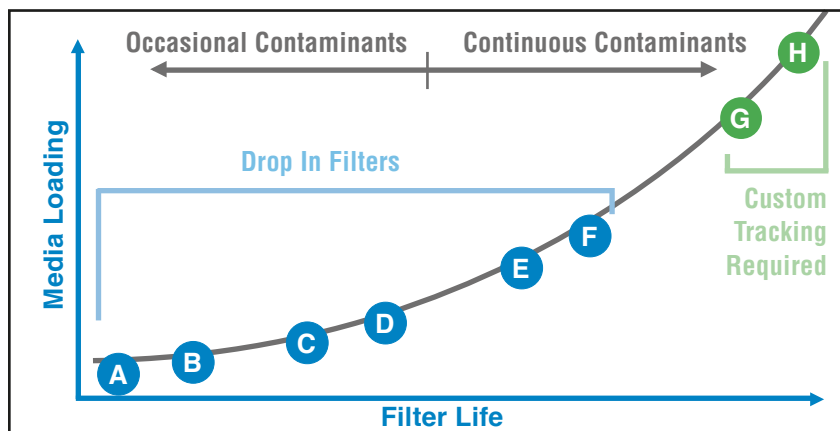
Eliminates corrosion-causing pollution and contaminants so your MRI machines and CT scanners can stay up and running. Hydrogen sulfide exposure can result in nausea, headaches, fatigue, coughing, eye and throat irritation and even unconsciousness, according to the US Department of Labor. This blend removes common gases including H_2S , NO_2 , SO_2 , VOCs and O_3 .

KITCHEN ODOR & SMOKE BLEND:

Captures common kitchens, including burnt food, cheese and other food smells. The EPA defines the effects of exposure to sulfur oxides as difficulty breathing, respiratory system problems and asthma irritation. It can also cause nose and throat irritation and excessive coughing. Give patients a safe, comfortable environment with Purafil's custom media. This blend removes common kitchen gases including H_2S , NO_2 , SO_2 , VOCs and Cl .

MEDIA LOADING BY FILTER

After you've decided which blend best suits your application, you can choose the media loading capacity that makes the most sense for your needs. We offer a wide range of filters to suit any filtration need.



ADVANCED FILTERS FOR EVERY NEED

Purafilter Odor Pleat



A

Excellent entry level gas phase filter for intermittent applications. Low Pressure drop keeps operating expenses down.

Media Loading up to	0.5 lb	0.2 kg
Pressure Drop 1"	N/A	N/A
Pressure Drop 2"	0.36 iwg	89.7 pa
Pressure Drop 4"	0.21 iwg	52.3 pa

Purafilter Odor Pleat Plus



B

Low Pressure drop keeps operating expenses down. Get Purafilter Odor Pleat Plus for 50% more media loading.

Media Loading up to	1 lb	0.5 kg
Pressure Drop 1"	N/A	N/A
Pressure Drop 2"	0.52 iwg	129.4 pa
Pressure Drop 4"	0.47 iwg	116.9 pa

Purafilter



C

Combination chemical and particulate filter that integrates Purafil® patented dry-scrubbing media. Easily replace current particulate filter and upgrade the air quality for your tenants.

Media Loading up to	12 lbs	5.44 kg
Pressure Drop 2"	0.51 iwg	127 pa
Pressure Drop 4"	0.43 iwg	107.1 pa
Pressure Drop 12"	0.47 iwg	117.1 pa

Purafilter HE



D

Combination chemical and particulate filter that integrates Purafil® enhanced carbon-loaded non-woven media using 100% synthetic fibers. Available in four specially blended combinations to address common air quality issues.

Media Loading up to	15 lbs	6.8 kg
Pressure Drop 2"	0.62 iwg	154.4 pa
Pressure Drop 4"	0.46 iwg	114.6 pa
Pressure Drop 12"	0.36 iwg	89.7 pa

PuraGRID Filters



E

A revolutionary filter designed to supply large amounts of chemical filtration with minimal pressure drop. Available in Puracarb IAQ and Puracarb AM (Ammonia).

Media Loading up to	21 lbs	9.53 kg
Pressure Drop 2"	0.29 iwg	72.2 pa
Pressure Drop 4"	0.58 iwg	144.5 pa

Purafil V-Bank



F

The Purafil V-Bank uses a high-impact plastic frame with a built-in header for strong, lightweight housing. Ideal for use in odor control where higher levels of contaminants would overwhelm the particulate filter.

Media Loading up to	28 lbs	12.7 kg
Pressure Drop: PCB	0.51 iwg	127 pa
Pressure Drop: CLR	0.36 iwg	89.7 pa
Pressure Drop: Blend	0.36 iwg	89.7 pa

Purafil Canisters



G

For high concentrations of gaseous contaminants. Available in galvanized steel, stainless steel and high-impact plastic housing. Designed to fit existing holding frames or built into Purafil's custom equipment.

Media Loading up to	90 lbs	40.82 kg
Pressure Drop 9"	1.75 iwg	435 pa
Pressure Drop 18"	0.42 iwg	105 pa
Pressure Drop 24"	0.18 iwg	45 pa

Purafil Modules



H

Available in high-impact plastic or galvanized steel, the specialty construction is adhesive free with highly aerodynamic airfoil screens to increase contact time while reducing pressure drop. Sampling ports allow you to test media life before replacing.

Media Loading up to	200 lbs	90.72 kg
Pressure Drop CK	0.6 iwg	149.5 pa
Pressure Drop PK12	0.6 iwg	149.5 pa
Pressure Drop PK18	0.49 iwg	102.1 pa

PURAFIL CUSTOM EQUIPMENT



FRONT ACCESS SYSTEM (FAS)

Modular frames are individually tracked for Purafil media modules. The FAS is specified in retrofit applications or custom air handling units.

Airflows up to 2,000 CFM per 24" frame



Positive Pressurization Unit (PPU)

Chemical and particulate filter with a self-contained blower for indoor use. Filters low-to-medium concentrations of gaseous pollutants and provides continuous positive pressure within the space.

Airflows of 500 - 4,000 CFM



PURAFIL® SIDE ACCESS SYSTEM (PSA)

The PSA is designed for both particulate and gaseous contaminant control and works in conjunction with the facility's air handling system.

Airflows of 250 - 50,000 CFM.

AIR QUALITY ASSESSMENT

Corrosive gas concentrations are invisible to the human eye and are commonly measured in parts per billion (ppb). Measuring the effects of corrosion requires reactivity monitoring (real-time or passive) as prescribed by ISA, ASHRAE, and iNEMI. We assess your environment to determine the types and levels of corrosive gases in rooms housing critical electronics. Strict criteria were developed by the International Society of Automation (ISA) to protect sensitive electronics from damage caused by corrosive gases. The ISA Standard 71.04-2013 has become the accepted guide for warranties of electronic equipment.



Purafil provides specially prepared Corrosion Classification Coupons (CCCs) for critical environments. The rate of corrosion buildup on the coupon, measured in angstroms, is indicative of the environment's severity level – G1, G2, G3, or GX. Purafil performs this service as a diagnostic tool to determine the types and levels of contaminants in various areas of your facility. We also offer the OnGuard Smart, which provides real-time updates on temperature, humidity and the reactivity of contaminants in the air, so you can be proactive in media replacements and maintain quality air.

ISA STANDARD 71.04-2013			
CLASS	COPPER REACTIVITY LEVEL (IN ANGSTROMS)*	SILVER REACTIVITY LEVEL (IN ANGSTROMS)*	AIR QUALITY CLASSIFICATIONS
G1	< 300	< 200	MILD <i>Corrosion is not a factor</i>
G2	< 1,000	< 1,000	MODERATE <i>Corrosion is measurable</i>
G3	< 2,000	< 2,000	HARSH <i>High probability that corrosion attacks will occur</i>
GX	> 2,000	> 2,000	SEVERE <i>Electronic equipment is not expected to survive</i>

*Normalized to a 30-day exposure. 1 angstrom = one hundred-millionth of a centimeter, or 10^{-10} meter.