

MARKET SEGMENT BROCHURE

CLEAN AIR SOLUTION FOR HEALTHCARE FACILITIES

IMPROVING INDOOR AIR QUALITY, PROTECTING
CRITICAL EQUIPMENT, AND ELIMINATING ODOR



purafil
Filtration Group®



PROTECTING PATIENTS AND EQUIPMENT



PROTECT YOUR PATIENTS AND STAFF FROM INCOMING EXHAUST FUELS.

Controlling airborne pollutants is essential to maintaining a comfortable indoor environment. Pollutants can come from outside and inside the building. Outside sources of odors and contaminants include helipads, incinerators, loading docks, ambulances, generators, and waste disposal units. These are usually located on the roof or the rear of the building within a few feet of primary Air Handling Units (AHUs). Standard particulate filters are not sufficient to prevent all the exhaust odors, VOCs and toxic gases from entering the hospital. Beyond the unpleasant odors, the International Agency for Research on Cancer, diesel exhaust has more than 30 components that can cause cancer.

Purafil Solution: Front Access System (FSA), Side Access System (PSA), and Purafilters

CAN YOU AFFORD DOWNTIME WITH YOUR CT SCANNER OR MRI MACHINES?

Without the proper air filtration units, highly polluted outdoor environments can affect indoor air quality and have been known to cause corrosion in electronic equipment like CT Scanners and MRI machines. This is especially prevalent in countries where Air Handling Units (AHUs), with outdoor air intakes are located near sewage treatment plants (STPs). Many hospitals in India have reported reoccurring failure of their CT scans and MRI machines due to such conditions. In many of those hospitals there are a limited number of these critical machines, which makes such failures a serious concern. The Hydrogen Sulfide (H_2S) coming from the STPs, accelerates corrosion of the sensitive electronic systems of the medical machines and cause failures.

Purafil Solution: Cabinet Unit (PPU and CA), Puragrid Filter, Purafilter, and OnGuard Smart

IMPROVE IAQ TO INCREASE THE SUCCESS RATES FOR IVF IN YOUR CLINIC

The term airborne molecular contamination (AMC) refers to the presence of unwanted gas-phase contaminants in the cleanroom. Factors that contribute to the overall AMC load to a cleanroom are outdoor air, fugitive emissions from process equipment, chemical storage areas, off-gassing from building and construction materials, accidental spills, and bioeffluents from personnel. Effects of AMC in IVF labs have been shown to be very significant, causing a threefold decrease in success rates. AMC filtration has been proven to dramatically affect the IVF lab operation and increase pregnancy rates.

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

PURAFIL PROVIDES THE SOLUTION



PURAFIL PROVIDES CLEAN AIR TO A CHILDREN'S HOSPITAL

One of the largest pediatric hospital networks in the United States was having issues with the air quality coming into their building. Doctors and patients were complaining about a strong diesel odor while in the Operating Rooms (OR). Purafil identified the source of the odor as the HVAC air intake system located near the hospital helipads, loading dock, and parking deck. The nearby HVAC air intake was pulling the vehicle exhaust fumes into the building and operating room suite HVAC system.

The existing filtration system was not effectively filtering 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). Upon evaluation of the problem, Purafil retrofitted side and front access scrubbers containing our patented chemical media, shown to last twice as long as competition.

Since installation, there have been no complaints about air quality in this facility for over a decade. They have remained a valued 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 DRY-SCRUBBING MEDIA ADVANTAGE

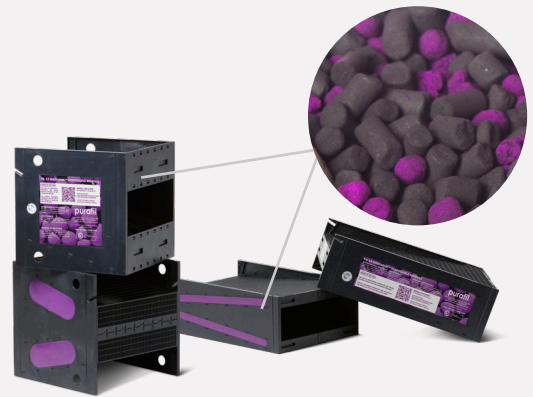
PURAFIL ENGINEERED MEDIA

Purafil offers a broad selection of dry-chemical pellets called media, which are the core of our air purification solutions. Purafil manufactures a wide variety of media to remove specific pollutants from specific sources. Our patented media formulations are manufactured using special chemicals that react with damaging gases and remove them from the air stream. Contaminant gases are chemically transformed into harmless solids that remain trapped inside the media. Known as chemisorption, this process converts detrimental contaminants into harmless salts.

Our media provides more than double the removal capacity of equivalent competitor products. In most cases, we recommend Purafil® SP Blend media because it removes the widest variety of odors and gases such as VOCs, hydrogen sulfide, sulfur dioxide, oxides of nitrogen, acetic acid and formaldehyde. This unique formulation is available in Purafil equipment or our patented Purafilter. Our IAQ formulation for the PuraGRID filter offers the same gas removal and can also be installed into existing air handling systems.

PK-12 and PK-18 Modules

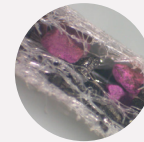
Purafil modules will help you save energy, money and time while improving indoor air quality, removing odors and preventing corrosion. The specialty design features a durable, adhesive-free construction with highly aerodynamic airfoil screens, easy access sampling ports and the patented Posi-Track™ Purafil technology. Purafil's modules can be inserted into existing module or cassette based equipment. Purafil's professional team of scientists and engineers have created an aerodynamic airfoil screen design. This enhancement provides a lower pressure drop and increased energy savings.



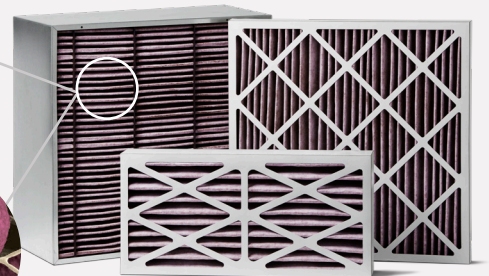
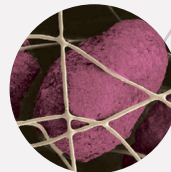
The Purafilter®

Combination chemical and particulate filter designed to replace existing particulate filters in retrofit or rework applications. The Purafilter contains Purafil SP Blend media and is useful in applications where space limitations exist. Purafil engineers are the first to successfully suspend sodium permanganate media in a bicomponent fiber matrix, which does not require the use of adhesives so the media is fully exposed for reaction with gaseous chemical contaminants and odors. Purafil's patented media formulation is evenly distributed throughout the filter structure to assure the highest filtration efficiency

16X Magnified



32X Magnified



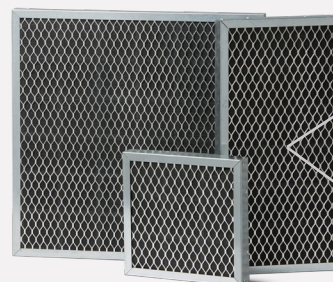
PuraGRID™ Filter with GridBLOK™ Technology

Made of extruded monolithic block consisting of a large number of small parallel cells or channels. The GridBLOK™ is composed of essentially 100% adsorbent materials allowing the entire composite structure to function as a gas filter within the PuraGRID Filter. This filter features no bypass, low pressure drop and turbulent air flow with full utilization of the media. PuraGRID filters can be used inside Purafil's custom engineered equipment or installed into existing air handling systems. While Purafil manufactures multiple GridBLOK formulations, the IAQ GridBLOK is specifically designed to improve Indoor Air Quality. This new media formulation has twice the removal capacity for formaldehyde than any other chemically impregnated media.

GridBLOK Media



Magnified view of the GridBLOK structure



PURAFIL CUSTOM EQUIPMENT



FRONT ACCESS SYSTEM (FAS)

The Front Access System consists of box-shaped units called “frames” which may be stacked vertically or horizontally, giving the system flexibility in terms of size and shape. The 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.



POSITIVE PRESSURIZATION UNIT (PPU)

The PPU is an all-in-one packaged air filtration machine for indoor use. Both particulate and chemical filtration are integrated into one unit, complete with a self-contained blower. It is used to filter low to medium concentrations of gaseous pollutants while providing 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. The PSA is a built-to-order system available in more than 20 sizes. A full range of prefilter selections and particulate final filter selections are also available.

Airflows of 250 - 50,000 CFM.



CORROSIVE AIR UNIT (CA)

The CA, also designed to be located within the protected space, is an air purification machine with recirculation as its primary function. The unit is used to further filter and polish the room air to maintain very low pollutant levels. It offers a number of advantages not present in filtration systems that are integral with the HVAC systems. Both particulate and chemical filtration and a self-contained blower are combined in one unit.

Airflows of 500 - 4,000 CFM.

AIR QUALITY ASSESSMENT AND MONITORING

AIR QUALITY ASSESSMENT

A controlled space housing critical electronic equipment is designed in accordance with strict environmental criteria to protect sensitive electronics from damage caused by corrosive gases. These criteria were developed by the International Society of Automation (ISA). The ISA Standard 71.04-2013 titled “Environmental Equipment Conditions for Process Management and Control Systems: Airborne Contaminants,” has become the accepted guide for warranties of electronic equipment.

Purafil’s Air Quality Assessment Service provides specially prepared Corrosion Classification Coupons (CCC’s) for critical operating environments. The rate of corrosion buildup, measured in angstroms, on the coupon 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.

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/electrical 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.

AIR QUALITY MONITORING

Purafil’s OnGuard® Smart (OGS) Monitor helps protect your equipment by measuring and transmitting the level of corrosion in your environment, allowing for action to be taken before problems develop. Purafil’s OGS can transmit real-time data, and is accessible over ethernet or Wi-Fi. In addition, the Purafil OGS contains internal temperature, humidity, and room pressure sensors. In remote applications, it can be operated as a data logger using battery power. All measurements are directly related to ISA Standard 71.04-2013 to help ensure there is no failure due to corrosion.

