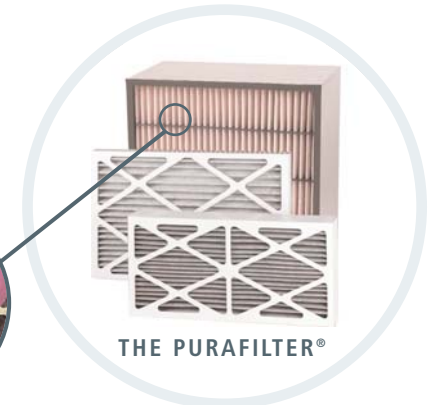
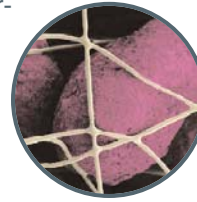


PRODUCT BULLETIN

4 THE PURAFILTER® CG CLEANROOM GRADE (HVAC)




THE PURAFILTER® is a combination chemical and particulate filter designed to replace existing particulate filters in retrofit or rework applications. Purafil engineers are the first to successfully suspend sodium permanganate adsorbents in a bi-component fiber matrix.



THE PURAFILTER®

STANDARD FEATURES

- 500 g/m² of Purafil engineered media
- Users choice of Purafil PSAM, CPS or PSPB media types
- 30 ft² of Purafil media per square foot of filter face area*
- 17 pleats per linear foot*
- Bi-component fiber matrix
- Reinforced media stabilizers
- Airflow: up to 500 ft./min (2.54 m/sec)
- Temperature Rating: -4° F to 125° F (-20° C to 51° C)
- Constructed of cleanroom-compatible materials
- Packaged individually and sealed in a non-porous bag

OPTIONAL FEATURES

- Particulate overlay, 85% ASHRAE efficiency
- Nominal 1 inch single header or double header frame
- 20-gauge galvanized steel frame

*Filters with 12" depth only

THE PROBLEM

With each technological advancement, operations become increasingly sensitive and intricate. As a result, airborne molecular contamination (AMC) has evolved as a serious threat to cleanroom environments.

PURAFIL PROVIDES THE SOLUTION

To remove AMC effectively and economically, Purafil offers the Purafilter CG.

Specifically designed for recirculation air handles, the Purafilter CG:

- reduces product defects and improves yield.
- prevents AMC-related corrosion caused by spills and leaks.
- eliminates odors and production downtime.

PRODUCT DESCRIPTION

The Purafilter-CG is a combination pleated media filter that integrates our patented impregnated adsorbents to remove gaseous *and* particulate contaminants simultaneously.

Through our unique manufacturing process, we can combine media to provide superior removal capacity and broader contaminant control. Our engineers, chemists and laboratory technicians control the quality of the Purafilter CG by evaluating and enhancing media formulas, design configurations, and production processes.

Our manufacturing process also allows for a high media loading, which reduces the cost of ownership by prolonging service life and reducing maintenance.

The Purafilter CG's bi-component fiber matrix does not use adhesives, so media particles are fully available to react with AMC. To ensure high filtration efficiency, adsorbent particles are uniformly distributed throughout the filter structure.

MEDIA TYPES

The Purafilter-CG is available in CPS™, PSAM™, and PSPB™ media types to remove specific gases in specific areas of cleanrooms. These media permanently remove AMC by transforming gases into harmless solids and trapping them within the adsorbent particles.

CLEANROOM COMPATIBLE, GUARANTEED

Third-party testing verifies that the Purafilter CG is constructed of cleanroom-compatible material that do not emit dopants, metals, organics, or other molecular contaminants at levels that would pose a risk to cleanroom processes.

PRODUCT BENEFITS

• **TARGETED AMC CONTROL:** Patented filter is available in three media types: PSAM™ for acid-base removal, CPS™ for acid-condensable removal, and PSPB™ for acid-dopant removal.

• **SIMULTANEOUS REMOVAL OF AMC AND PARTICULATES:** Adding an integral 85% layer provides AMC *and* particulate control in recirculation air handling units.

• **LONGER LIFE AND IMPROVED PERFORMANCE:** Purafil has combined the benefits of patented adsorbent media and proven technology to offer an unparalleled filter for AMC removal.

• **PERMANENT GAS REMOVAL:** The Purafilter CG will not desorb like traditional activated carbon filters. Gases are removed through irreversible chemical reactions.

• **LOW PRESSURE DROP:** Pressure drop at 500 fpm (2.54 mps) is 0.46 iwg (115 Pa) for the Purafilter CG.

PURAFILTER® CG



SIZES AVAILABLE:

SIZE (inches)	(millimeters)
24 x 24 x 12	(610 x 610 x 305)
24 x 20 x 12	(610 x 508 x 305)
20 x 20 x 12	(508 x 508 x 305)
12 x 24 x 12	(305 x 610 x 305)

MEDIA WEIGHT BY FILTER SIZE:

SIZE (inches)	WEIGHT (lbs / kgs)
24 x 24 x 12	12.59 / 5.71
24 x 20 x 12	10.73 / 4.87
20 x 20 x 12	8.90 / 4.04
12 x 24 x 12	5.99 / 2.72

BOX STYLE

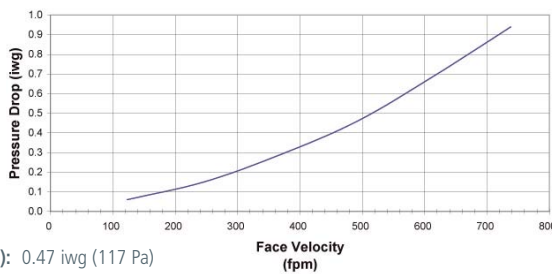
NOMINAL SIZE: 24 x 24 x 12 in
ACTUAL SIZE: 23 ³/₈ x 23 ³/₈ x 11 ¹/₂ in
 (594 x 594 x 292 mm)

ALL SIZES AVAILABLE. CALL FOR DETAILS.

PLEAT COUNT: 35 Pleats
SURFACE AREA: 123 ft²
AIRFLOW CAPACITY: 2,000 cfm

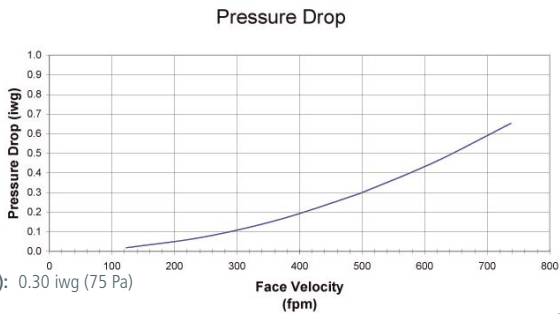
MEDIA: 85%

PRESSURE DROP:



MEDIA: Naked

PRESSURE DROP:



SINGLE HEADERED

NOMINAL SIZE: 24 x 24 x 12 in
ACTUAL SIZE: 23 ³/₈ x 23 ³/₈ x 11 ¹/₂ in
 (594 x 594 x 292 mm)

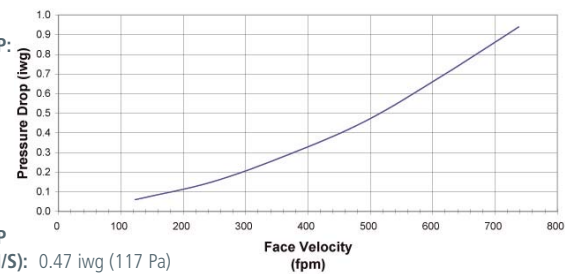
ALL SIZES AVAILABLE. CALL FOR DETAILS.

HEADER NOMINAL SIZE: 1 in
HEADER ACTUAL SIZE: ¹³/₁₆ in (21 mm)

PLEAT COUNT: 32 Pleats
SURFACE AREA: 105 ft²
AIRFLOW CAPACITY: 2,000 cfm

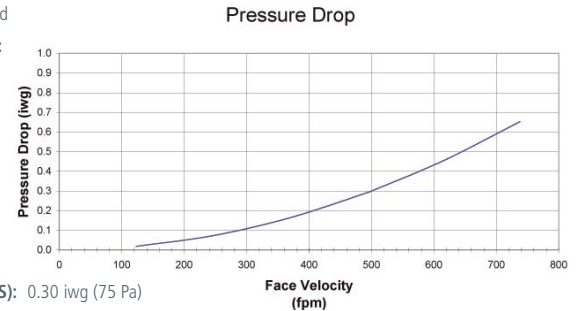
MEDIA: 85%

PRESSURE DROP:



MEDIA: Naked

PRESSURE DROP:



PURAFILTER CASE STUDY: OZONE AND VOC EFFECTIVENESS



An office building located in the southeastern United States was going “green” in order to attract and hold tenants. Part of this effort included the use of enhanced air cleaning for both indoor and outdoor air. The primary contaminants of concern in the outdoor air were ozone and volatile organic compounds (VOCs). Historically, ozone had averaged 30-50 ppb (60-100 $\mu\text{g}/\text{m}^3$) with peaks up to 150 ppb (300 $\mu\text{g}/\text{m}^3$) and VOC levels ranged from 80-150 $\mu\text{g}/\text{m}^3$ with peaks as high as 210 $\mu\text{g}/\text{m}^3$ during the months of May – September (GA DNR 2009).

MERV 6 and MERV 11 particulate filters were already in use in building’s air handling equipment and there was no room for additional hardware to accommodate the use of media modules, so 4” (100 mm) combination particulate / chemical filters were recommended. These were accepted as replacements for the MERV 6 filters with conditions that a minimum 90-day filter life was achieved. If these filters proved effective, meaning $\geq 50\%$ removal for VOCs and $\geq 40\%$ removal for ozone, they would be used on a continuing basis from April to September and then replaced with the MERV 6 filters from October to March.

Upstream and downstream ozone and VOC concentrations were measured nearly daily from May to September of 2007 to gauge the effectiveness (efficiency) of these filters. At the end of 90 days the VOC efficiency had dropped to $\sim 45\%$, but the ozone removal was still above 95% (Figure 1). This convinced the owner that these combination filters were effective and their use would result in improved IAQ. It was felt that the very high effectiveness for these filters against ozone – even as the effectiveness for VOCs approached zero – meant that the potential for adverse respiratory health effects due to ozone would be significantly reduced or eliminated. Also, the formation of new chemical species due to reactions between VOCs and ozone, many of which would be considered highly irritating, would be similarly reduced or eliminated.

