

Hospital Filtration Survey Results in Improved Air Quality Upgrade with MEGAcel® I Filters

CASE STUDY – HEALTHCARE

Customer Profile

- 595-Bed Hospital System
- 3 Separate Campuses
- One of the Nation's Top Cardiovascular Hospitals

Current Filtration Situation

A long-time AAF Flanders customer had been utilizing AAF Flanders products at two of its three hospital campuses for several years. The third campus came on board with AAF Flanders in 2009. Final filters used in the hospitals consisted of DriPak® bags, VariCel® I filters, and VariCel M-Pak filters, as well as limited HEPA filters employed in a new surgical suite.

Expressing the need to improve Indoor Air Quality (IAQ) in critical areas, the hospital relied on AAF Flanders' years of quality service to demonstrate the advantages of upgrading its final filters. With the understanding that hospital-related infections can cause significant economic consequences to any healthcare facility, AAF Flanders was prepared to offer practical solutions for the hospital system.

Technical Situation

The hospital system had a variety of air handling units (AHUs), ranging from two to 30 years of service. An AAF Flanders sales representative performed an Air Filtration System Survey that revealed the need for improvements, particularly in the older AHUs.



The AAF Flanders Solution

To help the hospital system make the best decision for its needs, AAF Flanders presented a good, better, and best solution for consideration:

Good

Continue using MERV 14 VariCel M-Pak filters and upgrade where applicable. Upgrade filter racks where needed and inspect/replace gasketing and latches to ensure bypass is kept to a minimum. This solution offered the least cost with slightly better IAQ levels than before.

Better

Upgrade all final filters and filter racks to MERV 15 VariCel VXL filters. When compared to the VariCel M-Pak filters, this option demonstrated an energy cost savings and improved the efficiency rating of all final filters at one level. Additionally, this option provided a longer filter life cycle and improved airflow.

Best

Upgrade final filters to AAF Flanders' MEGAcel I HEPA filter with ePTFE Filtration Technology. Traditional HEPA filters provide a much higher airflow resistance and would not typically be used without a costly upgrade to the AHUs. The MEGAcel I filter, however, provided the hospital with an option that was untraditional—HEPA filtration with the lowest possible resistance! This option gave the hospital optimal IAQ levels and energy savings as an added benefit.

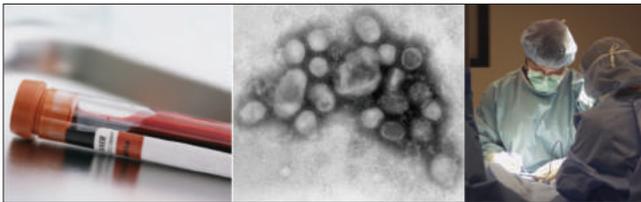
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Upgrade Benefits

AAF Flanders worked with the hospital system to provide options that would not just satisfy its IAQ needs, but also satisfy its budgetary requirements. Ultimately, the hospital system decided to upgrade all three campuses to AAF Flanders' MEGAcel I HEPA filters for the critical areas of the hospitals (ER, Surgery, ECU). MEGAcel I HEPA filters meet the demanding airflow and efficiency requirements of critical applications in which airborne contaminants must be carefully controlled.

Once the MEGAcel I filters were installed, a particle count test was conducted in the AHU system. This test measured the amount of particulates in the system upstream and downstream from the newly installed MEGAcel I filters, compared to the MERV 14 filter particle count results. The results verified the dramatic improvement to the hospital's air quality (Figure 1).

The hospital system also decided to upgrade patient care and non-critical areas to AAF Flanders' VariCel VXL filters. PerfectPleat® HC M8 filters were utilized as prefilters. The hospital system now has substantial validation that it is providing the best air quality achievable for its patients and staff.



National costs for Healthcare-associated Infections (HAI) range from \$28.4 to \$45.0 billion each year. HAIs account for an estimated 1.7 million infections and 99,000 associated deaths each year. Possible infection control interventions could save from a low of \$5.7 to a high of \$31.5 billion, according to a Center for Disease Control (CDC) study.¹

DriPak®, VariCel®, MEGAcel®, and PerfectPleat® are registered trademarks of AAF International in the U.S. and other countries.

¹ "The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention". Author R. Douglas Scott II, Economist Division of Healthcare Quality Promotion National Center for Preparedness, Detection, and Control of Infectious Diseases Coordinating Center for Infectious Diseases Centers for Disease Control and Prevention, March 2009.

Particle Count by Particle Size—Downstream Reading MERV 14 vs. MEGAcel® I Filters

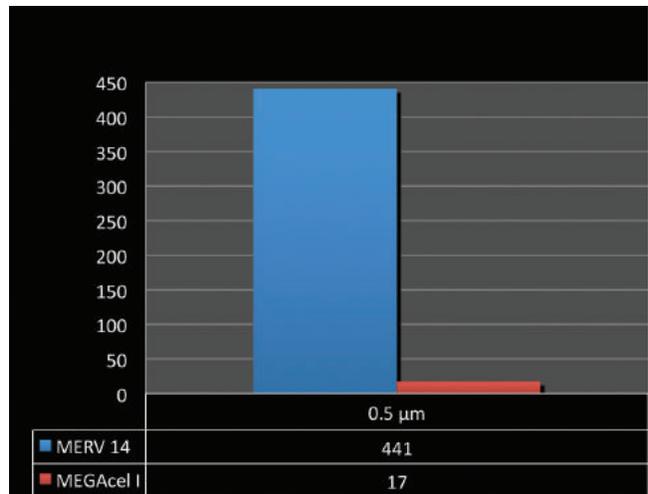
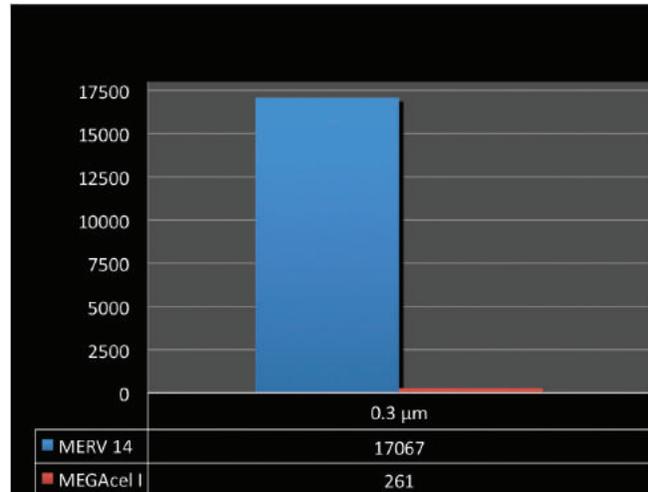


Figure 1

Exposure to submicron particulate matter poses health risks to humans. An individual virus particle ranges in size from 0.005 to 0.1 micron; however, viruses generally only survive in the air as part of larger particles (0.3 micron or larger), for example, attached to proplet nuclei. Because of the particle collection mechanisms of HEPA filters, particles larger and smaller than a filter's most penetrating size are collected with greater efficiency.



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AFP-6-101B 01/17