

Pathogens and Air Filtration

High-efficiency Filtration of Airborne Contaminants

High-efficiency particulate air (HEPA) and ultra-low penetration air (ULPA) filters prevent nearly all airborne contaminants from entering or leaving critical spaces. **HEPA** filters remove a minimum of **99.97%** @ 0.3 μm particles from airstreams, while **ULPA** filters remove at least **99.999%** @ 0.12 μm particles from the air.

These highly efficient filters protect against contaminants such as:

- Asbestos, clays, elemental particles, and man-made fibers
- Molds, spores, and pollens
- Bacteria, viruses, and byproducts

HEPA and ULPA filters ensure clean air for many industries, including those that are particularly affected by the recent SARS-CoV-2 outbreak, such as:

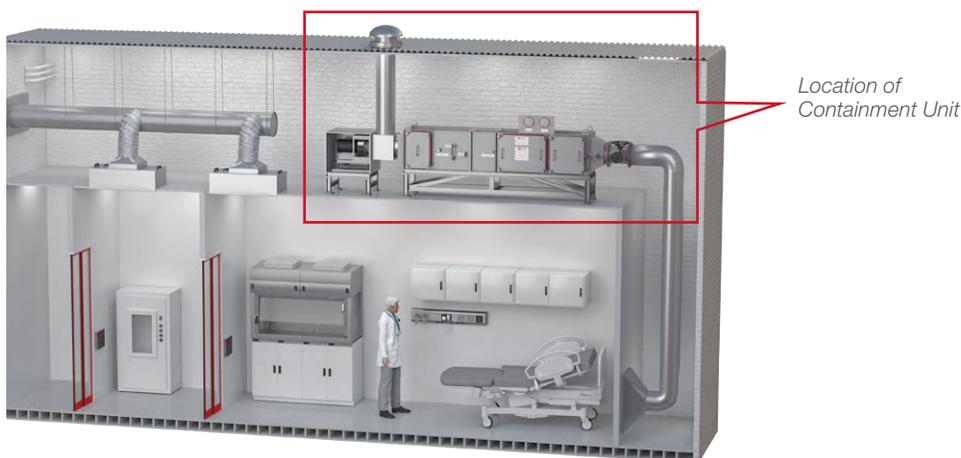
- Biosafety research
- Government
- Healthcare
- Pharmaceutical

Implementing air filtration in these environments is an effective and simple engineering control that reduces pass-through of biological agents into downstream areas. Because HEPA and ULPA filters are individually tested and specially designed to remove smaller particles from airstreams, HEPA filtration at minimum is recommended to aid in the elimination of dangerous microbes. For even more sensitive operations, ULPA filtration is advised.

Containment for Additional Protection

For further protection, containment units provide a safe, reliable method for removing contaminated particles in hazardous environments. In particular, bag in-bag out (BIBO) equipment minimizes exposure to bacteria, viruses, and other contaminants. These units incorporate a bagging ring behind an access door, over which a PVC bag is attached, allowing maintenance personnel to avoid direct contact with contaminants on filters.

Robust units, such as the one in the diagram below, come self-contained with HEPA filter, prefilter, bag in-bag out system for safe filter replacement, isolation damper, base, and exhaust stack. These systems allow existing rooms to be transformed quickly into isolation rooms for infected patients.



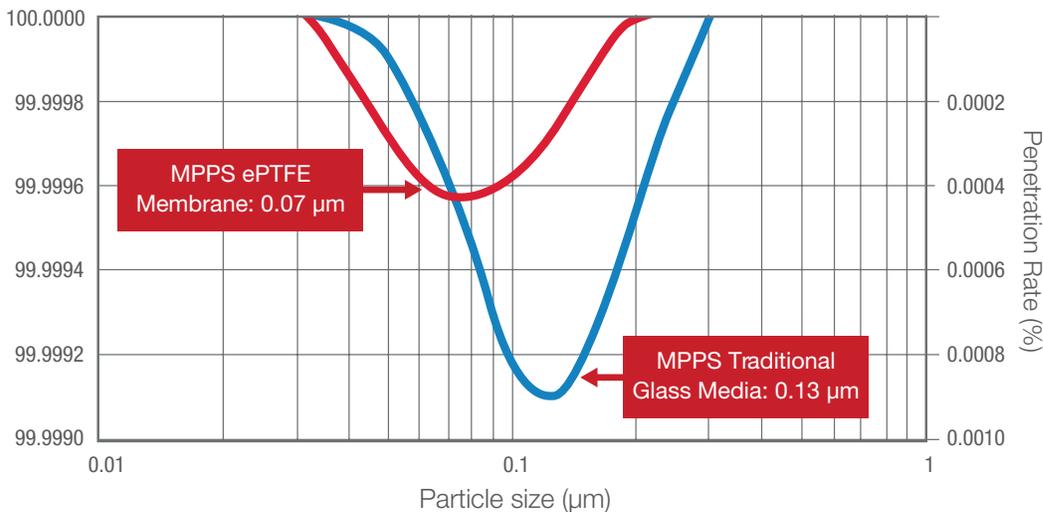
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Most Penetrating Particle Size (MPPS)

Particles that are 0.5µm in size or smaller tend to follow increasingly erratic paths as particle size decreases, a phenomenon known as the diffusion effect. As such, HEPA and ULPA filters are often rated according to their most penetrating particle size, or the size of particles that most readily pass through them.

As depicted in this line graph, filters that achieve the same efficiency rating, in this case ULPA filters rated at 99.999%, are not necessarily equal in their MPPS performance.

MPPS of Microglass and Membrane ULPA Media



2X as many particles 0.1µm in size penetrate the filter made with microglass media as the filter made with membrane media.

Membrane Media – The Modern Choice for HEPA and ULPA Filters

Having determined the correct HEPA/ULPA filters and equipment to maintain the required cleanliness levels, one choice yet remains. Specifically, operators of these clean environments may opt for filters made of either microglass or membrane media. Microglass media filters still have their place, such as high-temperature applications. However, membrane media offers compelling reasons to make a switch in HEPA and ULPA filter media.

• From Our Cleanroom to Yours

When purchasing HEPA and ULPA filters from AAF Flanders, media production, testing, and packaging are all performed in an ultra-modern ISO-Certified controlled environment, eliminating the potential for contamination during the manufacturing process.

• Unsurpassed Strength & Durability

Microglass media frequently suffers damage during shipping, handling, installation, and testing, leaving cleanroom operators exposed to contamination risks from leaks that may escape the attention of the naked eye. Membrane media clearly outperforms microglass media in terms of tensile strength, abrasion resistance, and burst pressure.

• Low Pressure Drop

Membrane media offers a lower differential pressure than microglass media. Not only does this trait improve the energy efficiency of HVAC equipment, but it also reduces the wear and tear on this equipment.



AAF Flanders has a policy of continuous product research and improvement. We reserve the right to change design and specifications without notice.

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