Ultraseal HEPA Filters are HEPA filters having efficiencies of 99.97%, 99.99%, or 99.999% on 0.3um per Mil. Standard 282 or IEST-RP-CC001.3 Types A and C per Section 4.2.

These filters are available in a variety of sizes, in framing materials of wood, aluminum, galvanized steel, and stainless steel. They are available in box, Double Turned Flange (DTF), or single header styles.

The standard models can be utilized up to 220°F, and 100% RH.

A High Temperature version is available for temperatures up to 500°F.

Filtration LAB

Ultraseal HEPA filters are designed to meet the critical filtration requirements where airborne contaminants can cause damage in manufacturing processes or may cause health hazards.

Only materials that meet our stringent quality standards are utilized. All manufacturing steps are closely monitored to insure that every filter will perform as expected.

Ultraseal filters are available in a variety of framing materials, which include particleboard, galvanized steel, aluminum and stainless steel. The gasket type sealing frames are available in double turned flange (DTF), and single header styles in metal, and box and single header styles in wood. These frames are also available in Gel Seal style. They are available in three flow rate capacities to meet varying fan capacities of Standard, Low Resistance and High Capacity.

Ultraseal filters are certified to be a minimum of 99.97% @ 0.3 um particles and meet the requirements of IEST RP-CC-001.3, type A filters. Scanned Ultraseal filters are certified to be a minimum of 99.99% @ 0.3 um particles and meet the requirements of IEST RP-CC-001.3, type C filters.

Ultraseal filters are constructed to perform at temperatures up to 220°F (104°C), and at 100% relative humidity. High temperature Ultraseal filters are available to operate continuously at temperatures up to 500°F (260°C).
Ultraseal HEPA Filters

High Performance Filtration for Critical Air Cleaning Applications

The FILTRATION LAB ULTRASEAL HEPA is designed to meet the critical filtration requirements of a wide range of applications where airborne contaminants can cause damage in manufacturing processes or may cause health hazards.

The filter is completely reliable in operation, easy to install and easy to maintain. It operates at a relatively low pressure drop and removes nearly all hazardous and other undesirable particulate matter from the air.

Thousands of ULTRASEAL filters are in successful use today in a wide variety of industrial, commercial and institutional installations where the highest possible degree of cleaning is required.

Some typical applications are:

- Precision Assembly Areas
- Pharmaceutical Plants
- Food and Beverage Processing Plants
- Research Laboratories
- Photographic Plants and Laboratories
- Nuclear Operations
- Computer Ventilation Systems

And many other applications where it is necessary to:

- Provide dust free air
- Remove pathogenic organisms and mold spores
- Remove radioactive or toxic dusts

Filter Efficiency

Over the years many different methods have been used to measure air filter efficiency.

Today, the most commonly accepted method of measurement is ASHRAE Standard 52-76. It incorporates two separate test methods:

- **Arrestance.**
  Formerly referred to as the increase in filter weight (due to dust collected) against the total amount of dust fed.

- **Efficiency.**
  This general test method was previously referred to as area efficiency or as discoloration efficiency. It is now the procedure by which filter performance is determined under ASHRAE Standard 52-76.

It measures the filter’s ability to remove the staining fraction of atmospheric dust. If the filter removes none of the staining fraction, its ASHRAE efficiency is 0. If the filter removes all of the staining fraction (as with the Ultraseal), its **efficiency is 100%**.

Neither of these procedures is satisfactory for rating the efficiency of the Ultraseal filter.

The efficiency of Ultraseal filters is determined by measuring the changes in mass concentration of a monodisperse test aerosol of 0.3 micron size (as described in Mil-Std-282) at the air entering and air leaving sides of the filter.

This is the most critical test for the efficiency of an air filter and is the one employed by Filtration LAB on all its Ultraseal filters.

Typical Values – Standard Tests

<table>
<thead>
<tr>
<th>Type Filter</th>
<th>Arrestance (Synthetic Dust)</th>
<th>Efficiency (Atmospheric Dust)</th>
<th>PAO Test (0.3 Micron Smoke)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultraseal HEPA</td>
<td>100</td>
<td>+</td>
<td>*99.99 min.</td>
</tr>
<tr>
<td>Ultraseal HEPA</td>
<td>100</td>
<td>+</td>
<td>**99.97 min.</td>
</tr>
<tr>
<td>Bio Medical HEPA</td>
<td>100</td>
<td>99</td>
<td>95</td>
</tr>
<tr>
<td>Supracell 95</td>
<td>100</td>
<td>90-95</td>
<td>80-85</td>
</tr>
<tr>
<td>Supracell 85</td>
<td>99</td>
<td>80-85</td>
<td>50-60</td>
</tr>
<tr>
<td>Supracell 65</td>
<td>96</td>
<td>60-65</td>
<td>20-30</td>
</tr>
<tr>
<td>Electronic Precipitator</td>
<td>100</td>
<td>85-90</td>
<td>60-70</td>
</tr>
<tr>
<td>Automatic Roll Filter</td>
<td>75</td>
<td>Less than 20</td>
<td>2-5</td>
</tr>
<tr>
<td>2&quot; Throwaway</td>
<td>75</td>
<td>Less than 20</td>
<td>2-5</td>
</tr>
<tr>
<td>2&quot; Washable</td>
<td>75</td>
<td>Less than 20</td>
<td>2-5</td>
</tr>
</tbody>
</table>

+Essentially 100% Test not practical for more accurate reading.
* Leak-free by scan testing (Fed. Std. 209 latest revision)
**Maximum allowable penetration of PAO smoke 0.03.
The PAO Test

The PAO (Polyalphaolefin) test, formally known as the DOP test, is the method by which Northland rates the efficiency of all its Ultraseal filters. PAO has been approved by the US Army and the Army Surgeon General as a suitable and safe replacement for DOP (Dioctyl Phthalate) which has been placed on the list of suspected carcinogens.

The PAO is heated to its vapor point and then condensed back to a test aerosol of uniform particles 0.3 microns in diameter. Samples are taken from the air leaving the side of the filter and compared to samples taken from the air entering side to determine the overall percentage of efficiency. The sample is drawn through a chamber. A beam of light shines into the chamber but is prevented by a shield from striking a photomultiplier tube. When the test sample enters the chamber, light is scattered by the smoke particles around the shield and falls on the photomultiplier tube. The electrical impulse is amplified and registered directly on a meter in percent penetration. Accurate readings as low as one thousandth of one percent are attainable.

Filter Construction

Standard Ultraseal HEPA filters are constructed with a wood particleboard frame. All wood frames have rabbed joints for secure seal and ridged construction. Frame materials also available are fire retardant wood particleboard, plywood, and a variety of metals, which include zinc-coated steel, stainless steel and aluminum. Metal frame styles are available with single inward turned flange, single outward turned flange or double turned flanges. The filter pack consists of a continuous sheet of pleated all glass micro-fiber media. Corrugated aluminum separators maintain controlled pleat spacing in the filter. The filter pack is secured to the top and bottom of the frame utilizing a two part high density fire retardant urethane adhesive. The adjacent sides are secured using a self-extinguishing rubber based adhesive. A closed cell neoprene gasket is supplied standard on one side.

All Ultraseal filters constructed with fire retardant wood particleboard or metal frames meet the requirements of UL-586. The UL label may be affixed to the filter when requested.

Pre-filtration

It is recommended that, in systems in which the air contains a small number of large particles, pre-filters be placed ahead of the Ultraseal filter. This can increase the life greatly depending upon the efficiency of the pre-filter.