Millipore offers a complete selection of filter holders to match any application.

- Glass, stainless steel or plastic formats
- Compatible with most chemicals
- Diameters from 13 mm to 293 mm to suit a wide range of volumes
- Visit www.millipore.com for more information on filter holders and accessories

Microfiltration Membranes for the Laboratory
Figure 1: Depth filters (left) have a random network of flow channels that trap particles throughout the depth of the matrix. Membrane filters (right) have a geometrically regular matrix of pores. Particles are retained by size exclusion.

Membrane Selection for Mobile Phase Preparation: Chemical Compatibility

Choosing the proper membrane device for your laboratory process is an important first step in any successful analysis. To help you identify the filtration device best suited to your specific application we created this handy membrane selection guide that will help you choose the Millipore® membrane that will provide you with the highest quality, consistent results from downstream analyses. If you need further help or have a question, you can access our knowledgeable Millipore technical service representatives by visiting www.millipore.com/techservice or browse our extensive on-line technical library at www.millipore.com.

Microfiltration

Microfiltration (MF) is the process of removing particles or biological entities in the 0.025 µm to 10.0 µm range from fluids or gases by passage through a microporous medium such as a membrane filter. Although micron-sized particles can be removed by non-membrane or depth materials such as those found in fibrous media, only a membrane filter having a precisely defined pore size can ensure quantitative retention (Figure 1). Membrane filters can be used for either final filtration or prefiltration, whereas a depth filter is generally used in clarifying applications where quantitative retention is not required or as a prefilter to prolong the life of a downstream membrane. Membrane and depth filters offer certain advantages and limitations. They can complement each other when used together in a microfiltration process system or fabricated device.

The retention boundary defined by a membrane filter can be used as an analytical tool to validate the integrity and efficiency of a system. For example, in addition to clarifying or sterilizing filtration, fluids containing bacteria can be filtered to trap the microorganisms on the membrane surface for subsequent culture and analysis. Microfiltration can also ensure accurate dissolution testing results by removing undissolved excipients from the sample.

An important consideration when choosing a membrane for any application is the chemical compatibility of the membrane material with the mobile phase you plan to use. As technological improvements by instrument manufacturers continue to drive detection limits lower, the elimination of extractables in your sample becomes essential to maintaining the accuracy of downstream analyses. This chart, developed by Millipore scientists, rates the chemical compatibility of a variety of common membrane and mobile phase combinations based on the level of extractables observed. A comprehensive chemical compatibility chart is available at www.millipore.com/chemcompat.

Millipore’s expert team of scientists understands the complexity of collection, separation and purification processes and supports your most difficult challenges in life science, environmental and industrial research.
## Laboratory Filtration Membranes and Materials

<table>
<thead>
<tr>
<th>Membrane Material</th>
<th>Brand Name</th>
<th>SEM Image</th>
<th>Pore Sizes</th>
<th>Hydrophilic/ Hydrophobic</th>
<th>Binding</th>
<th>Chemical Compatibility</th>
<th>Key Properties</th>
<th>Common Applications</th>
<th>Product Formats</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVDF</td>
<td>Durapore®</td>
<td>![Sem Image]</td>
<td>0.1 µm to 5 µm</td>
<td>Philic</td>
<td>Lowest</td>
<td>Good</td>
<td>Lowest protein binding</td>
<td>RLB, Luminex bead assays, general filtration</td>
<td>Cut discs, MultiScreen® filter plates, Ultrafree® filters, sterile &amp; non-sterile Millex® syringe filters, Steriflip/Filtrac® filter systems</td>
</tr>
<tr>
<td>Polyethersulfone</td>
<td>Millipore Express™</td>
<td>![Sem Image]</td>
<td>0.22 µm and 0.45 µm</td>
<td>Philic</td>
<td>Low</td>
<td>Limited</td>
<td>Fastest flowing for sterile filtration</td>
<td>Sterile filtration</td>
<td>Cut discs, sterile filtration (Steriflip filter/cup/cap), sterile &amp; non-sterile Millex syringe filters</td>
</tr>
<tr>
<td>Mixed cellulose esters</td>
<td>MF-Millipore</td>
<td>![Sem Image]</td>
<td>0.025 µm to 8 µm</td>
<td>Philic</td>
<td>High</td>
<td>Limited</td>
<td>Most widely used referenced general purpose filter</td>
<td>Ellispot, environmental monitoring, general filtration</td>
<td>Cut discs, environmental monitors, sterile &amp; non-sterile Millex syringe filters, MultiScreen® multiwell filter plates</td>
</tr>
<tr>
<td>Polycarbonate</td>
<td>Isopore™</td>
<td>![Sem Image]</td>
<td>0.05 µm to 12 µm</td>
<td>Philic</td>
<td>Low</td>
<td>Limited</td>
<td>Smooth surface for microscopy</td>
<td>Particle analysis, drug permeability &amp; solubility</td>
<td>Cut discs, MultiScreen filter plates</td>
</tr>
<tr>
<td>Nylon</td>
<td>Nylon</td>
<td>![Sem Image]</td>
<td>0.22 µm and 0.45 µm</td>
<td>Philic</td>
<td>Medium</td>
<td>Excellent</td>
<td>Alternative for solvent filtration</td>
<td>Clarification of organic solutions</td>
<td>Cut discs, non-sterile Millex syringe filters</td>
</tr>
<tr>
<td>PTFE</td>
<td>Fluoropore™, Mitex™</td>
<td>![Sem Image]</td>
<td>0.22 µm to 10 µm</td>
<td>Phobic</td>
<td>Low</td>
<td>Best</td>
<td>Best solvent resistance</td>
<td>Clarification of organic solutions, gas filtration, total drug analysis</td>
<td>Cut discs, Millex FG50 filter, MultiScreen filter plates, Solvinert® filter plates</td>
</tr>
<tr>
<td>LCR, Omnispore™</td>
<td></td>
<td>![Sem Image]</td>
<td>0.1 µm to 10 µm</td>
<td>Philic</td>
<td>Low</td>
<td>Best</td>
<td>Smooth surface for microscopy</td>
<td>HPLC buffer &amp; sample prep</td>
<td>Cut Discs, non-sterile Millex syringe filters, Solvinert filter plates</td>
</tr>
</tbody>
</table>

### FILTER MEMBRANE

- Cut Disc Filters
- MultiScreen Filter Plates
- Millex Syringe Filter (sterile)
- Millex Syringe Filter (non-sterile)
- Millex FGS Filter
- Stericup Filter
- Steriflip Filter

### PREFILTER/NET FILTER

- Glass fiber AP filters
- Polypropylene PP prefilters
- Cellulose RW prefilters
- PVC PVC filters
- Nylon net filters
- Polypropylene PP net filters

For technical assistance, contact Millipore: 1-800-MILLIPORE (1-800-645-5476)
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