FAQ: General Questions about Membranes for Lab Applications

What do the terms "hydrophilic" and "hydrophobic" mean in the filtration industry?

Hydrophilic filters are easily wet with water. Hydrophilic filters can be wetted with virtually any liquid, and are the preferred filters for aqueous solutions, as appropriate by compatibility. Once wetted, hydrophilic filters do not allow the free passage of gases until the applied pressure exceeds the bubble point and the liquid is expelled from the pores of the membrane.

Hydrophobic filters will not wet in water but will wet in low surface tension liquids, for example, organic solvents such as alcohols. Once a hydrophobic filter has been wetted, aqueous solutions also will pass through. Hydrophobic filters are best suited for gas filtration, low surface tension solvents, and venting. In certain applications, hydrophobic filters are used to filter aqueous solutions because of compatibility requirements. Water or aqueous solutions can also pass through a hydrophobic filter once the water breakthrough pressure is reached.

Can GHP membrane be autoclaved?

GH polypro (GHP) membrane is not autoclavable.

How do I choose when to use Supor® or HT Tuffryn® or GH Polypro (GHP) membrane?

The decision to use Supor versus HT Tuffryn versus GH Polypro (GHP) membrane disc filters will be made based on the specific application. In general, GH Polypro (GHP) membrane has better chemical compatibility and lower UV extractables; it is optimized for analytical applications. Supor membrane is used in sterile applications and has higher flow rates and throughput, and exhibits low non-specific protein binding. Supor membrane is scaleable into process applications. HT Tuffryn membrane can also be used for sterile applications.

Why filter sterilize instead of autoclave?

You should filter sterilize instead of autoclaving because proteins are heat sensitive and therefore autoclaving may denature your sample.

How can I tell the difference between the interleaf and the membrane?

The interleaf will vary from membrane to membrane. To distinguish between the membrane and interleaf, a general rule is that the interleaf will have a waxy feel and will be clear or colored, not white.

What is a bubble point and how is it determined?

A bubble point is a simple, nondestructive, inexpensive test to confirm that the pores in the filter are not too large. It is the minimum amount of pressure required to push air bubbles through the largest pore in a wet membrane. Please contact technical services for protocols to determine the bubble point for your specific device or membrane.
What are the grid dimensions on S-Pack membranes?

The grid dimensions on an S-Pack membrane are 3 mm x 3 mm. The average number of squares for a 47 mm disc filter is 185.

What is "DOP"?

"DOP" stands for dioctyl phthalate, which is a 0.3 µm aerosol particle used to test for filter efficiency in air. This test is performed following the ASTM D 2986-95A 0.3 µm (DOP) at 32 L/min/100 cm² filter media.

What is the pore size of Tissuquartz™ media?

Tissuquartz media, like most Pallflex® media, are used for air monitoring applications. An aerosol retention rating is used due to the fibrous nature of the media. Tissuquartz media is 99.9% retentive of 0.3 µm (DOP) particles at 32 L/min/100 cm².

What is the difference between absolute and nominal?

Nominal filter ratings are an arbitrary value, indicating a particulate size range at which the filter manufacturer claims the filter removes some percentage. Nominal ratings vary from manufacturer to manufacturer and cannot be used to compare filters among manufacturers. Processing conditions such as operating pressure and concentration of contaminant have a significant effect on the retention efficiency of the nominally-rated filters.

Absolute filter ratings are a value associated with a filter that represents the size of the smallest particle completely retained. Complete retention is within the experimental uncertainty of a standard test method consistent with the intended filter use. Among the test conditions that must be specified are test organism (or particle size), challenge pressure, concentration, and detection method used to identify the contaminant.

What is the difference between a depth filter and membrane filter?

A Depth Filter is a filter consisting of either multiple layers or a single layer of a medium having depth, which captures contaminants within its structure, as opposed to on the surface. Depth filters typically have nominal pore size ratings.

A Membrane Filter typically traps contaminants larger than the pore size on the addressed surface of the membrane. Contaminants smaller than the rated pore size may pass through the membrane or may be captured within the membrane by other mechanisms. Membrane filters are typically used for critical applications such as sterilizing and final filtration.

What is the difference between pore size and porosity?

The pore size of a membrane refers to the size of the “holes” in the filter media. Porosity of a membrane is the number of, or percentage of, pores contained in a filter.

Does Pall offer special cuts of membrane?

Pall has the capability to offer special cuts on most membrane materials. Please contact technical service for additional information.
**Does Pall offer cellulose acetate (CA) filters?**

Pall does not offer cellulose acetate filters. Supor membrane was designed to be an alternative to cellulose acetate. It has lower protein binding capacity and has better chemical compatibility.

**Does Pall have Teflon® filters?**

Teflon is a registered trademark of DuPont™. The material of construction for Teflon is PTFE. Pall does manufacture a variety of PTFE membranes and devices.

**Which membranes are available in the S-pack configuration?**

Supor, GN-6 Metricel®, and Metricel Black membrane disc filters are all available in sterile packs. Other membranes may be available under special requests; please contact technical service for details.

**Is my filter compatible with...?**

See Pall's online chemical compatibility guide.

**What is the maximum temperature for Glass or Quartz?**

The maximum operating temperature for Quartz is 1093 °C. The maximum operating temperature for glass, however, will depend on the specific media. The range for Pall's glass fiber filters is 135 °C to 550 °C.

**How can I clear my membrane?**

Clearing procedures are available for certain membranes. Please contact technical service for additional information. Or go to these product pages and click the Performance tab for clearing procedures for DM Metricel® Membrane Disc Filters or GN Metricel Membrane Disc Filters.