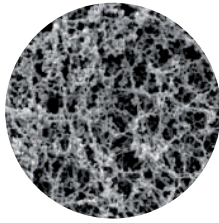


Filtration Membrane Types

The most common membrane types are described here with physical properties and applications.



Cellulose Acetate (CA)

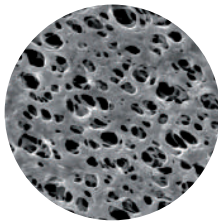
Hydrophilic membrane. Low protein binding, Ideal for protein, cell culture media and enzymes filtrations, tissue culture media sterilization, biological fluid filtration and other filtration applications where maximum recovery of proteins is critical.

Characteristics

- ◆ Low protein binding, 3.8 µg/cm²
- ◆ Hydrophilic
- ◆ High throughput
- ◆ Superior strength and stability
- ◆ Uniform pore structure, consistent flow rates
- ◆ Burst strength of 130 psi

Applications

- ◆ Protein and enzyme filtration
- ◆ Biological fluid filtration sterilization
- ◆ Tissue culture media sterilization
- ◆ Clarification of aqueous and alcohol solutions
- ◆ Cell Culture



Nylon (NY)

Hydrophilic membrane. Ideal for use in general filtration or medical assays. Superior strength, resistant to a range of organic solvents. Low extractables. High protein binding capacity. Very high lot-to-lot consistency.

Characteristics

- ◆ Naturally hydrophilic
- ◆ Wide chemical compatibility range
- ◆ Strength and dimensional stability
- ◆ Low extractables

Applications

- ◆ Sterilization, clarification of aqueous and organic solvent solutions
- ◆ Analytical sample preparation
- ◆ Chromatography
- ◆ Hydraulic Fluids and Machined Parts



Polyethersulfone (PES)

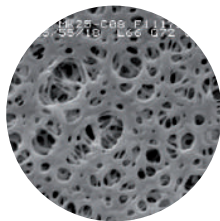
Hydrophilic membrane. Designed to remove particulates during general filtration. Low protein and drug binding characteristics make it ideally suited for use in life science applications, maximizing recovery of critical drugs used in I.V. therapy, chemotherapy and open-heart surgery. Its strength and durability are advantageous during usage that involves aggressive handling or automated equipment. Low protein and drug binding characteristics

Characteristics

- ◆ Very Low Protein Binding
- ◆ Fast Flow Rates
- ◆ Low Extractables
- ◆ Wide Chemical Compatibility Range
- ◆ Strength and Dimensional Stability
- ◆ Autoclavable

Applications

- ◆ Protein and enzyme filtration sterilization
- ◆ Biological fluid filtration sterilization
- ◆ Tissue culture media sterilization
- ◆ Pharmaceutical sterilizing filtration
- ◆ Environmental water studies
- ◆ Filtration of Aqueous Solutions
- ◆ Analytical Sample Preparation, uHPLC
- ◆ IC Chromatography
- ◆ Sterile Filtration and Clarification
- ◆ Cell Culture



Asymmetric Polyethersulfone (PES)

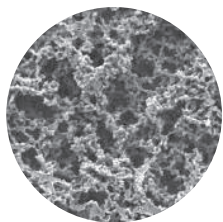
Asymmetric PES enables the fast filtration of aqueous solutions with greater throughput. The PES membrane has low drug and protein binding properties with aqueous solutions. Low ion and metals extractables provide for ideal analysis by ion chromatography and ICP MS.

Characteristics

- ◆ Fast flow rate
- ◆ High filter capacity
- ◆ Low protein binding
- ◆ Extended filtration capacity and lifetime
- ◆ Higher particle loads and protein concentrations tolerance

Applications

- ◆ Prefiltration and Clarification
- ◆ Liquid filtration and sterilization
- ◆ Ion chromatography
- ◆ Gas separation



Nitrocellulose Mixed Esters (NC)

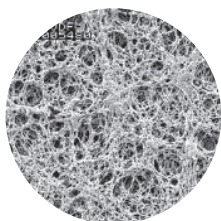
Hydrophilic membrane. Aqueous clarification and particulate capture. Consistent high flow rate for faster filtration. Uniform pore structure for selectivity. Hydrophilic, inert cellulose nitrate. High binding capacity.

Characteristics

- ◆ Hydrophilic for aqueous clarification and particulate capture
- ◆ Consistent high flow rate for faster filtration
- ◆ Uniform pore structure for selectivity
- ◆ Hydrophilic, inert cellulose nitrate
- ◆ High binding capacity
- ◆ Manufactured thickness within 10 microns

Applications

- ◆ Filtration of Aqueous and Organic Solutions
- ◆ Analytical Sample Preparation, uHPLC
- ◆ Chromatography
- ◆ Clarification

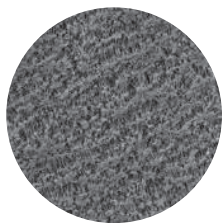


Polyvinylidene Difluoride (PVDF)

Hydrophilic membrane. Ideal for use in Sterilizing and Clarifying filtration of biological solutions. High Flow Rates. Low Extractables. Broad Chemical Compatibility. Very low protein binding.

Applications

- ◆ Filtration of Aqueous and Organic Solutions
- ◆ Analytical Sample Prep, uHPLC
- ◆ Chromatography
- ◆ Clarification



Polytetrafluoroethylene (PTFE)

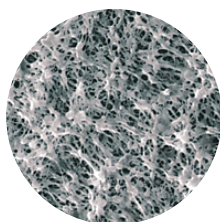
Hydrophobic membrane. Ideal for filtration of strong acids and aggressive solutions, venting applications, phase separations, aerosol samplings. Chemically and biologically inert. Superior chemical resistance. Can withstand high temperatures.

Characteristics

- ◆ Naturally hydrophobic
- ◆ Compatible with strong acids and aggressive solutions
- ◆ Improved durability and handling

Applications

- ◆ Filtration of strong acids and aggressive solutions
- ◆ Venting applications
- ◆ Phase separations
- ◆ Aerosol sampling



Hydrophilic Polytetrafluoroethylene (PTFE HP)

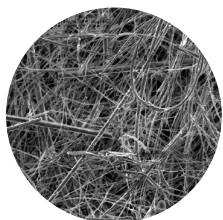
PTFE HP membrane is compatible with organic solvents, acids, and basic solutions. Hydrophilic PTFE membrane has low drug and protein binding properties with excellent aqueous and solvent compatibility. High sample recoveries and low ion and UV extractables provide for ideal analysis by μ HPLC and LC/MS.

Characteristics

- ◆ No need to pre-wet the membrane
- ◆ No need to flush membrane of pre-wetting chemicals
- ◆ No pre-wetting means production time reduction
- ◆ Reduce potential interference with biological processes
- ◆ Longer shelf life because the filters are stored and shipped dry

Applications

- ◆ Molecular identification
- ◆ Structural determination
- ◆ Pharmacokinetics
- ◆ Drug discovery and development
- ◆ Drug testing
- ◆ Environmental monitoring
- ◆ Food safety monitoring
- ◆ Oil composition determination



Glass Fiber (GF)

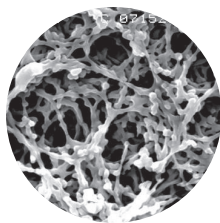
Hydrophilic material. Used also as a pre-filter to extend membrane life. Eliminate sample contamination. Excellent wet strength for each handling and filter integrity. Ideal for water/air pollution analysis, liquid clarification and cell harvesting.

Characteristics

- ◆ Acrylic binder
- ◆ High dirt holding capacity
- ◆ Biologically inert
- ◆ Bonding reduces media migration

Applications

- ◆ Filtration of Aqueous and Organic Solutions
- ◆ Analytical Sample Preparation
- ◆ Difficult to Filter Solutions
- ◆ Fuel Hydraulic Fluids and Machined Parts



Regenerated Cellulose (RC)

Hydrophilic membrane. Resistant to a very wide range of solvents. Suitable for use with either aqueous solutions or organic solvents. Compatible with HPLC solvents. Very low protein binding capacity and hence excellent for protein recovery applications.

Applications

- Filtration of Aqueous and Organic Solutions
- Analytical Sample Prep, uHPLC
- Chromatography
- Clarification
- Protein Chemistry



Polypropylene (PP)

Broad chemical compatibility allowing use with aqueous and organic solvents samples. Low extractable levels designed to provide accurate, consistent analysis results for sensitive ion chromatography applications while prolonging column life.

Applications

- Aqueous and organic solvent filtration
- Analytical Sample Preparation requiring low detection levels
- Ion chromatography
- Total digest for heavy metals

