biocomma

Faster & Purer & Safer

SpinFlow® Microfiltration Product Catalog

Preparation, Separation, Filtration, Monitoring Products

Advanced tools for drug discovery and sample preparation

- 2mL, 15mL, 50mL Micro Centrifugal Filters
- 24-well, 96-well Micro-Filter plates
- Suitable for various application needs

TWO

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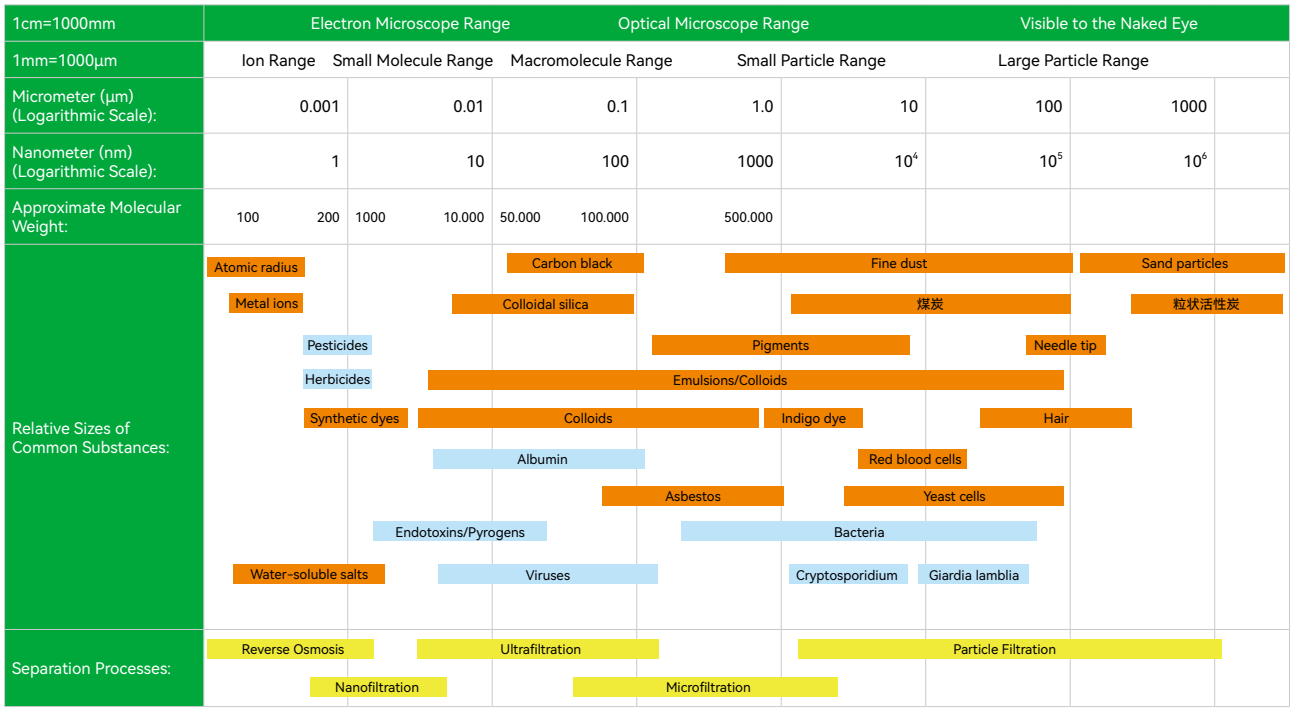
Preface

Filtration is an important separation technique used to remove impurities or unwanted components from a fluid through physical or chemical means, resulting in a purer substance. This process is widely applied in industrial production, daily life, and scientific research.

Biocomma integrates injection molding and filtration technologies, combining injection-molded products with selected filtration materials to achieve filtration. Depending on sample size, filtration precision can be categorized into three levels: 0.1-1 μm filtration, 1-100 μm filtration, and filtration for samples larger than 100 μm.

Common Particle Sizes of Substances



Biocomma® has specialized in filtration for 18 years, providing diverse filtration solutions with a focus on the following areas:

1.Spinflow® Microfiltration

Utilizing advanced microporous processing technology, SpinFlow® products feature an extremely narrow pore size distribution and excellent chemical stability. These filters precisely retain impurities while maintaining high throughput. Widely applied in sterilization, cell culture, protein purification, and other precision operations, they effectively remove particles, bacteria, and macromolecular contaminants from solutions, ensuring purity and accuracy in experimental results.

2.Filtration Consumables

Offering a range of filtration precisions from 1 μm to 120 μm, these consumables are suitable for single-sample processing (1-300 mL gravity filtration columns, centrifuge filtration columns) or batch processing of up to 24/96/384 samples, meeting various experimental needs. They include a variety of materials and pore sizes, such as 96-well filtration plates for large-particle sample filtration and single-step filtration of viscous samples, preventing clogging and ensuring molecular biology experiments are accurate and efficient.

3.Syringe Filters

Addressing issues like sample loss and excessive pressure differentials across filters, these filters offer low-adsorption membrane options and can be solvent-washed as needed.

4.Sample Preparation Solutions

Including filtration consumables and chromatography supplies, these solutions are suitable for food and clinical testing, enabling rapid sample separation and purification, thereby improving the reliability and reproducibility of experimental results.

5.Polymeric Filtration Materials

Polymeric filtration materials are a core aspect of Biocomma's filtration technology. These materials offer exceptional mechanical strength, chemical stability, and biocompatibility, maintaining stable filtration performance in harsh environments. Biocomma's polymeric filtration materials are widely used in fields like blood purification, water treatment, and pharmaceutical processes, providing reliable support for various filtration systems. Additionally, their custom services meet client-specific requirements for pore size, flow rate, and filtration efficiency.

This manual provides a comprehensive and detailed overview of Spinflow® microporous filtration product solutions.

BRAND PROFILE

SO 9001:2015 ISO 13485:2016 ISO 14001:2016

Spinflow® is a specialized filtration product series developed by Biocomma for applications such as nucleic acid extraction, purification, bacterial liquid filtration, and protein precipitation. This series leverages advanced membrane technology and material science to achieve rapid separation and purification of biological samples.

Spinflow® Brand Definition

Spinflow-spin + flow

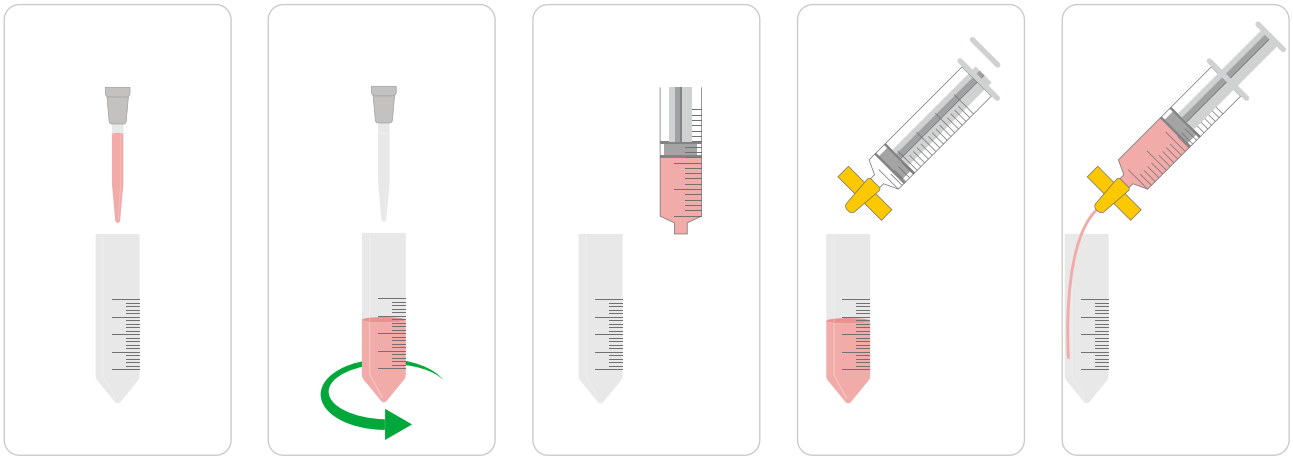
Combined, Spinflow conveys the idea that liquid flows out only through high-speed centrifugation. Biocomma's SpinFlow® series, with its exceptional technical performance and wide range of applications, has set an industry benchmark in the field of biological filtration. As technology continues to advance and application scenarios expand, Biocomma will further deepen its focus on filtration technology, providing higher-quality and more efficient filtration solutions to research and production institutions worldwide.

Application Scenarios

The Spinflow® series of microfiltration products and technical solutions include filtration columns, plates, lysis filtration columns, and more. These products are widely used in various biotechnology and life science fields, such as protein kinase/phosphatase analysis, protein purification, receptor-ligand binding analysis, protein binding assays, ELISPOT analysis, sample preparation, pre-mass spectrometry sample filtration, removal of fluorescent dyes, and more.

Spinflow® technology refers to the concept that under non-centrifugal conditions, the solution does not penetrate the membrane, allowing for sample lysis, transport, and storage. Under centrifugation, the liquid penetrates, reducing steps like centrifugation found in traditional methods. The typical sample filtration size is between 0.1–1 μm.

Traditional Sample Filtration Process:



1.Transfer the sample into a centrifuge tube

2.Centrifuge

3.Transfer the liquid into another centrifuge tube

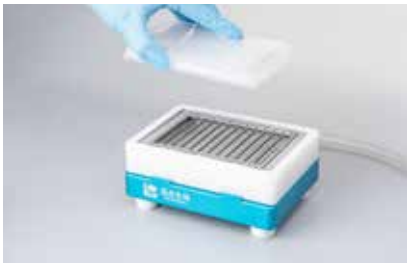
4.Use a 0.65 μm filter to remove residual impurities

5.Use a 0.22 μm filter for sterilization

Spinflow® Micro-Filter Plate:

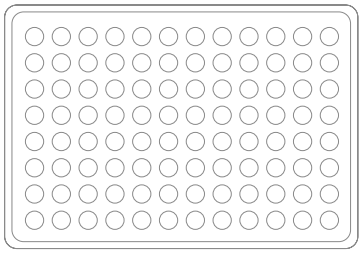
1.Place the filtration plate onto a vacuum apparatus.

2.Add the sample that requires filtration and start the vacuum pump for negative pressure filtration.



3.After the samples have been completely filtered, turn off the vacuum pump.

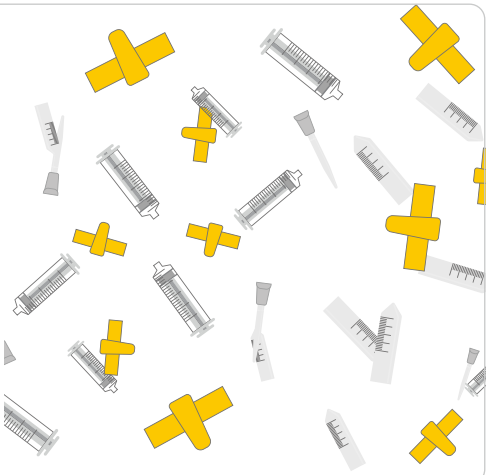
96-Well Micro-Filter Plate



1=96

One 96-well filtration plate is equivalent to 96 syringe filters

Filters 96 Samples at Once



Comparison of Common Microfiltration Products:

Category	Syringe Filter	Micro Centrifugal Column	Micro-Filter Plate
Sample Quantity	1	1	24/96
Sample Volume (per well, mL)	< 1/1-10/10-100	0.8/7/22	0.3/0.6
Usage Method	Paired with a syringe	Compatible with common centrifuges	Centrifugation or vacuum filtration
Applications	Broadly used in laboratories for filtration of small-volume samples such as proteins, culture media, additives, buffers, reagents, or drugs for sterilization and clarification.	A column-shaped filtration device containing a membrane and support materials that filters liquid through the membrane using centrifugation or vacuum pressure.	Ideal for high-throughput sample processing, such as protein purification, receptor-ligand binding analysis, protein binding assays, sample preparation, and pre-mass spectrometry sample filtration.

Available Types and Characteristics of Microfiltration Membranes

Microfiltration membranes are made from high polymer chemical materials, with pore-forming additives applied to a support layer through special treatment. In membrane separation technology applications, microfiltration membranes are the most widely used type due to their simplicity, speed, and extensive applications in scientific research, food testing, chemical industry, nanotechnology, energy, and environmental protection.

Biocomma® offers filtration columns and plates based on membrane materials. The available membrane types include polyethersulfone (PES), hydrophilic polytetrafluoroethylene (PTFE), hydrophobic PTFE, hydrophilic polyvinylidene fluoride (PVDF), hydrophobic PVDF, cellulose acetate (CA), mixed cellulose esters (MCE), and nylon (NY).

Features:

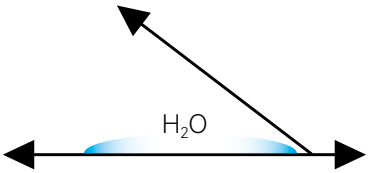
Performance Testing:

Membrane Type	Hydrophilic / Hydrophobic	Pore Size (μm)	Characteristics	Common Uses
Polyethersulfone (PES)	Hydrophilic	0.22 / 0.45	Low protein adsorption, high strength and flow rate, low leachables, pH resistant (2-13), particle retention rate > 99.99%	General filtration, sterile filtration
Polytetrafluoroethylene (PTFE)	Hydrophilic	0.22 / 0.45	Strong hydrophilicity, high throughput, low leachables, low protein adsorption, anti-membrane fouling, suitable for handling corrosive chemicals	Water solution filtration
	Hydrophobic	0.22 / 0.45	Excellent chemical resistance, high throughput, low leachables, high mechanical strength, good uniformity, pH resistant (1-14)	Filtration of corrosive liquids, organic solvent filtration, liquid sterilization, impurity removal
Polyvinylidene fluoride (PVDF)	Hydrophilic	0.22 / 0.45	Low protein adsorption, strong hydrophilicity, high flow rate, low leachables, broad chemical compatibility	Sterile filtration, protein solution filtration, culture medium filtration
	Hydrophobic	0.22 / 0.45	Chemical resistance: pH 2-12, high strength, strong tear and tensile strength, high porosity, high purity from high-purity raw materials	Air and gas clarification filtration
Cellulose Acetate (CA)	Hydrophilic	0.22 / 0.45	Low adhesion, hydrophilic, high yield, stable dimensional strength, consistent pore structure	Sterile filtration of proteins and enzymes, biological liquid sterilization, tissue culture medium sterilization
Mixed Cellulose Esters (MCE)	Hydrophilic	0.22 / 0.45	High porosity, high adsorption, high purity, biologically inert, good thermal stability, pH resistant (4-8)	HPLC sample preparation, water solvent filtration, sterile filtration of media and buffers
Nylon (NY)	Hydrophilic	0.22 / 0.45	Excellent hydrophilicity, extremely low leachables, excellent mechanical strength, pH resistant (2-13)	Pre-filtration of samples and flow, sterilization, removal of suspended solids and colloids in water treatment industry

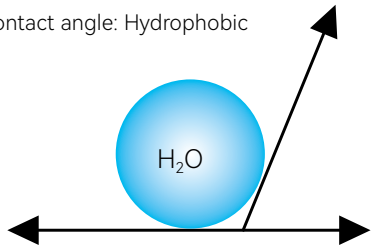
Performance Testing:

Hydrophilicity and Hydrophobicity:

Small contact angle: Hydrophilic



Large contact angle: Hydrophobic



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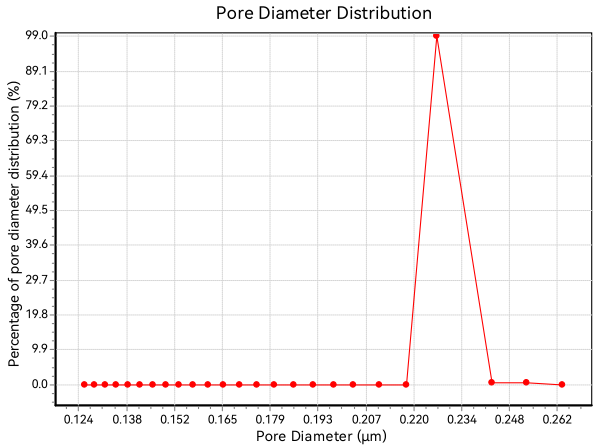
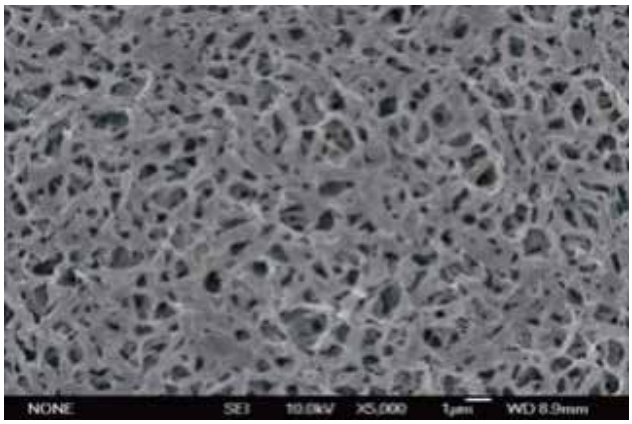
Pore Size::



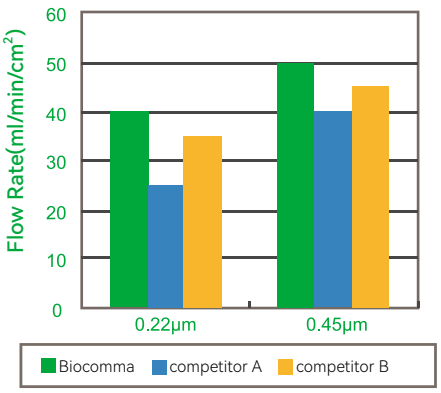
hydrophilic PTFE membrane (0.22 μm) pore size distribution.

Morphology:

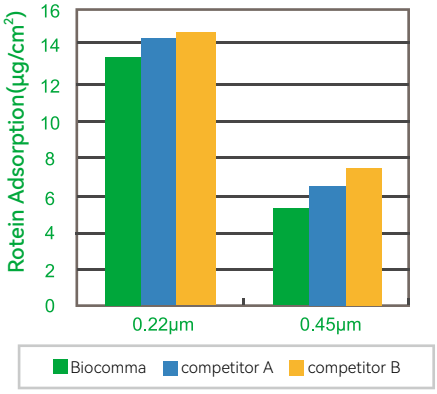


Scanning electron microscopy images of hydrophilic PTFE membrane (0.22 μm)

High flow rate / Low protein adsorption:



High flow rate



Low protein adsorption

Membrane Selection Guide:

Membrane Type	Main Applications
Mixed Cellulose Ester Membrane (MCE)	Suitable for filtering proteins and aqueous solutions in biological samples, such as blood serum medium filtration.
Polyethersulfone Membrane (PES)	Suitable for filtering cell culture media.
Nylon Membrane (NY)	Hydrophilic, high protein binding, suitable for protein-free aqueous and organic solutions; resistant to alcohol and DMSO.
Hydrophobic Polytetrafluoroethylene Membrane (Hydrophobic PTFE)	Hydrophobic, resistant to strong acids, strong bases, and high temperatures; suitable for filtering highly corrosive solutions, organic solutions, and gases.
Hydrophilic Polytetrafluoroethylene Membrane (Hydrophilic PTFE)	Used for natural product screening, solubility testing, total drug analysis, protein precipitation analysis, bead lysis, and solid-phase synthesis.
Polyvinylidene Fluoride Membrane (PVDF)	Suitable for general biological filtration; not suitable for filtering strongly corrosive liquids; not resistant to acetone, DMSO, THF, DMF, dichloromethane, chloroform, etc.
Cellulose Acetate (CA)	Suitable for filtering proteins and aqueous solutions in biological samples, such as serum and culture medium filtration.

SpinFlow® Micro Centrifugal Filters

SpinFlow® Micro Centrifugal Filters, also known as centrifuge filters, are suitable for protein purification, sample preparation, sterile filtration, and various other applications. They are designed for standard benchtop centrifuges and are available in 2 mL, 15 mL, and 50 mL formats.

Advantages:

- High Efficiency Filtration: The pore size of the filtration membrane in the Micro centrifugal Column is precisely defined, allowing for effective removal of impurities and particles from liquids.
- Stable and Reliable: The structure of the filtration column is stable, and the membrane is not easily deformed or broken, ensuring consistent filtration performance.
- Flexible Application: Different membrane pore sizes and materials can be selected as needed to meet various filtration requirements.
- Easy to Operate: The Micro centrifugal Column is simple and convenient to use; just pour the liquid to be filtered into the column to begin the filtration process.

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SpinFlow® Micro Centrifugal Filters typically consist of a column body, a filter membrane, and support materials. The column body acts as the outer shell and is usually made of corrosion-resistant, high-pressure materials to ensure that it does not chemically react with or leak liquid during filtration. The filter membrane is the core component of the filtration column, and its pore size can be selected according to the required retention of different particle sizes. The support material is used to support the membrane and prevent deformation or rupture during the filtration process.

Working Principle:

The filtration is based on the screening effect of the membrane. As the liquid passes through the filtration column, impurities and particles are retained on the upper side of the membrane, while the purified liquid flows through the micro-pores of the membrane into the collection container below. By adjusting the pressure or flow rate of the filtration column, the filtration speed and effect can be controlled.

Application Scenarios:

Widely used in the fields of biology, chemistry, medicine, and food. In biological laboratories, it is often used to remove impurities from culture media, clarify cell culture solutions, and sterilize microorganisms. In chemical laboratories, it can be used for the filtration and purification of chemical reagents. In the pharmaceutical and food industries, Micro Centrifugal Filters are also used in the filtration, sterilization, and clarification processes of drug and food production.

Features:

- Designed specifically for standard benchtop microcentrifuges.
- Can be used for small to large volumes of biological and environmental samples, facilitating downstream processing and analysis.
- Removes bacteria, particles, or cells from liquids via centrifugal filtration, and prepares HPLC samples while removing DNA from agarose or polyacrylamide gels.
- Customizable.

Example Applications:Sterilization

Sample Preparation

According to ASTM (American Society for Testing and Materials) F838-05 (2005 Edition of the Bacterial Retention Test Standard), the challenge bacteria are added to the liquid culture medium based on the effective filtration area of the filtration device.

Validation Method:

1.Add an appropriate concentration of bacterial suspension to the filtration column (0.22 μm filter column):

Use a pipette to transfer 3 mL to each column and collect the filtrate (centrifugal filtration). Transfer 1 mL of the filtrate onto an agar plate; the entire process must be performed in a biological safety cabinet under sterile conditions. Incubate the plate in a 28 ° C constant temperature incubator for 48 hours and observe for colony formation and count colonies.

2.Competitive Product Comparison:

Use a syringe to take 3 mL of bacterial suspension and filter it through a syringe filter, then compare the collected filtrate.

3.Negative Control:Use sterile PBS buffer solution passed through the filter plate.

Negative Control:Use sterile PBS buffer solution passed through the filter plate.

4.High-Temperature and High-Pressure Sterilization Control:

Sterilize the sample liquid in a high-pressure steam sterilizer at 121 ° C for 25 minutes (the sample volume should be the same as that of the 24-well Micro-Filter plate in section 3.1.2). Pour the sterilized sample onto an agar plate and incubate in a 28° C constant temperature incubator for 48 hours to observe for colony formation and count colonies.

Sterilization Test Results

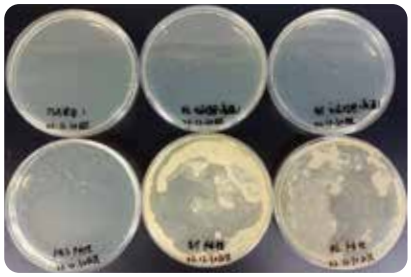


Figure 1. Cultured at 28℃ for 48 hours

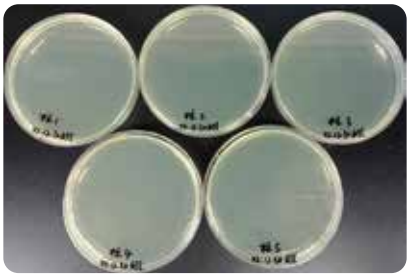


Figure 2. Cultured at 28℃ for 48 hours

Figure 3. Cultured at 28℃ for 48 hours

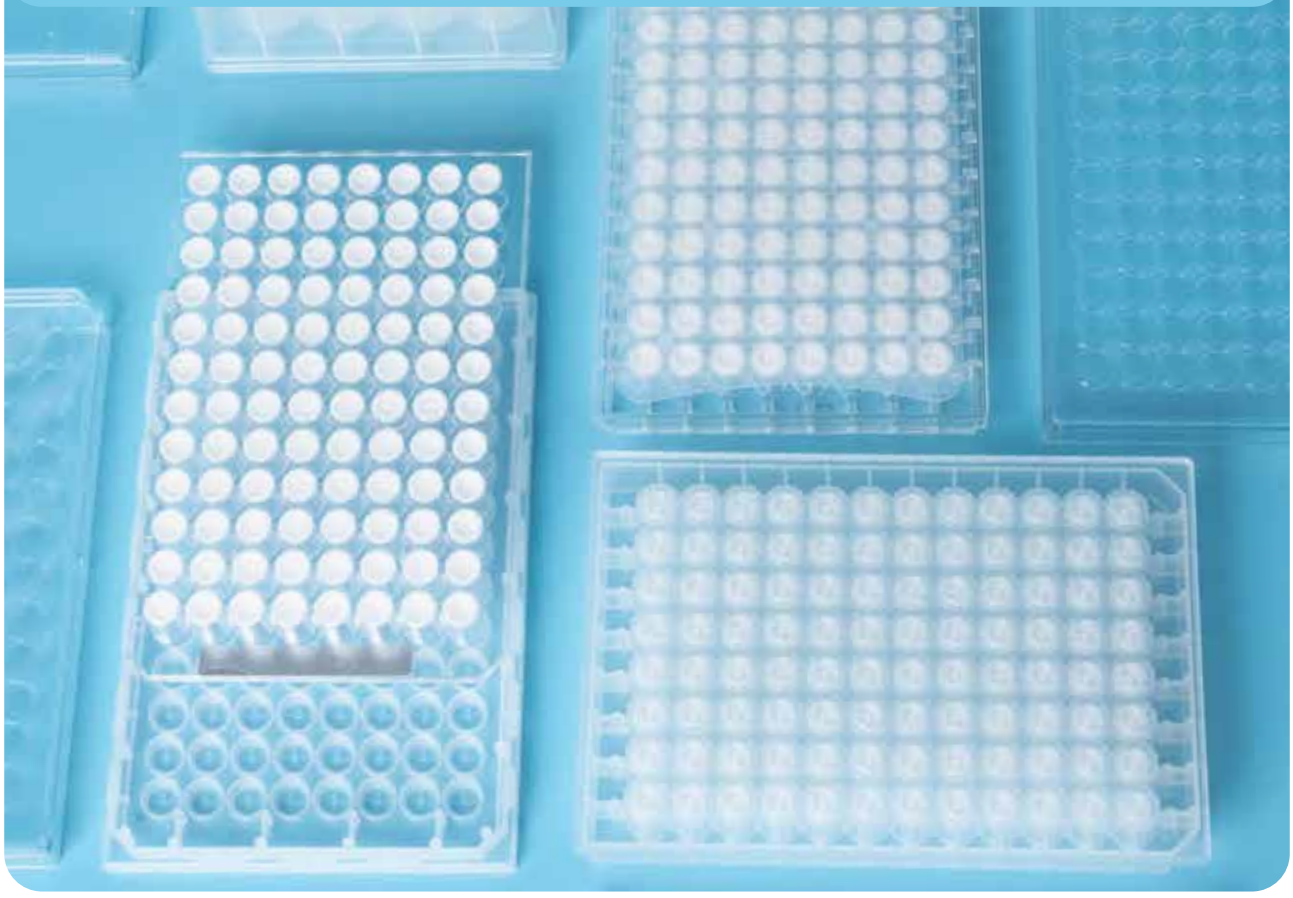
From the results, it can be seen that in the method control and negative control, none of the 5 samples from the Micro centrifugal column showed colony growth; samples 1 and 2 from the needle filter did not show colony growth, while sample 3 exhibited 2 colonies. The verification experiment for the filtration column was negative, while the verification experiment for the needle filter was positive.

Ordering Information

Item Number	Description	Packaging Specifications
FC0015-CA-22	Centrifugal Filters, 0.22μm Hydrophilic CA	2mL 50 sets/pack
FC0015-CA-45	Centrifugal Filters, 0.45μm Hydrophilic CA	2mL 50 sets/pack
FC0015-NY-22	Centrifugal Filters, 0.22μm Hydrophilic Nylon	2mL 50 sets/pack
FC0015-NY-45	Centrifugal Filters, 0.45μm Hydrophilic Nylon	2mL 50 sets/pack
FC0015-PES-H-22	Centrifugal Filters, 0.22μm Hydrophilic PES	2mL 50 sets/pack
FC0015-PTFE-22	Centrifugal Filters, 0.22μm Hydrophobic PTFE	2mL 50 sets/pack
FC0015-PTFE-45	Centrifugal Filters, 0.45μm Hydrophobic PTFE	2mL 50 sets/pack
FC0015-PTFE-H-22	Centrifugal Filters, 0.22μm Hydrophilic PTFE	2mL 50 sets/pack
FC0015-PTFE-H-45	Centrifugal Filters, 0.45μm Hydrophilic PTFE	2mL 50 sets/pack
FC0015-PVDF-22	Centrifugal Filters, 0.22μm Hydrophobic PVDF	2mL 50 sets/pack
FC0015-PVDF-45	Centrifugal Filters, 0.45μm Hydrophobic PVDF	2mL 50 sets/pack
FC0015-PVDF-H-22	Centrifugal Filters, 0.22μm Hydrophilic PVDF	2mL 50 sets/pack
FC0015-PVDF-H-22-S	Centrifugal Filters, 0.22μm Hydrophilic PVDF, sterile	2mL 50 sets/pack
FC0015-PVDF-H-45	Centrifugal Filters, 0.45μm Hydrophilic PVDF	2mL 50 sets/pack
FC015-CA-22	Centrifugal Filters, 0.22μm Hydrophilic CA	15mL 50 sets/pack
FC015-CA-22-S	Centrifugal Filters, 0.22μm Hydrophilic CA, sterile	15mL 50 sets/pack
FC015-PES-H-22	Centrifugal Filters, 0.22μm Hydrophilic PES	15mL 50 sets/pack
FC015-PVDF-22	Centrifugal Filters, 0.22μm Hydrophobic PVDF	15mL 50 sets/pack
FC015-PVDF-22-S	Centrifugal Filters, 0.22μm Hydrophobic PVDF, sterile	15mL 50 sets/pack
FC015-PVDF-45	Centrifugal Filters, 0.45μm Hydrophobic PVDF	15mL 50 sets/pack
FC015-PVDF-H-22	Centrifugal Filters, 0.22μm Hydrophilic PVDF	15mL 50 sets/pack
FC015-PVDF-H-45	Centrifugal Filters, 0.45μm Hydrophilic PVDF	15mL 50 sets/pack
FC050-CA-22	Centrifugal Filters, 0.22μm Hydrophilic CA	50mL 50 sets/pack
FC050-CA-45	Centrifugal Filters, 0.45μm Hydrophilic CA	50mL 50 sets/pack
FC050-PES-H-22	Centrifugal Filters, 0.22μm Hydrophilic PES	50mL 50 sets/pack
FC050-PVDF-22	Centrifugal Filters, 0.22μm Hydrophobic PVDF	50mL 50 sets/pack
FC050-PVDF-45	Centrifugal Filters, 0.45μm Hydrophobic PVDF	50mL 50 sets/pack
FC050-PVDF-H-22	Centrifugal Filters, 0.22μm Hydrophilic PVDF	50mL 50 sets/pack

SpinFlow® Micro-Filter Plates

Biocomma is committed to providing a diverse range of Micro-Filter plate products to meet the varied needs of different industries and laboratories. Our series of Micro-Filter Plates includes removable (R series), non-removable (NR series), and integrated (ONE series) types. Each type is designed to ensure exceptional filtration performance in various application scenarios.



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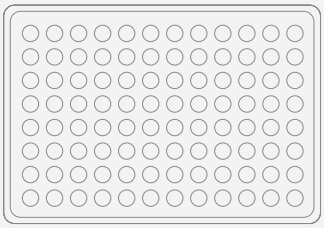
The SpinFlow® 96-well Micro-Filter plate is designed for high-throughput sample processing. The Micro-Filter is precisely injection molded from polystyrene and is compatible with various types and materials of filter membranes, such as polyvinylidene fluoride (PVDF), mixed cellulose esters (MCE), and polytetrafluoroethylene (PTFE). Each well of the plate is individually sealed, allowing seamless integration with removable manifolds and collection plates. The innovative porous design is particularly valuable for applications requiring the filter membrane to be immersed in assay plates.

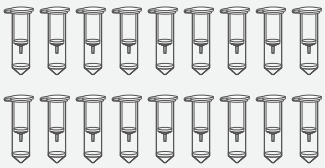
Based on the plate structure, the SpinFlow® 96-well Micro-Filter plate is divided into removable (R series), non-removable (NR series), and integrated (ONE series) types.



1=96

One 96-well filtration plate is equivalent to 96 syringe filters

Filters 96 Samples at Once



Features:

- Suitable for filtration at sub-micron levels
- Applicable for high-throughput sample processing
- No dead volume, high recovery rate
- Dimensions comply with ANSI/SBS standards, facilitating automation
- removable manifold and unique filtration plate design
- Compatible with vacuum or centrifugation methods
- Comes with corresponding collection plates and lids
- Each microhole is individually packaged with filter membranes, providing good stability between holes/plates without mutual interference

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Whatever your application, biocomma® has developed suitable filtration plates to meet your specific application needs. SpinFlow® Micro-Filter Plates have long been a reliable tool for promoting drug development and life sciences research, categorized into removable (R series), non-removable (NR series), and integrated (ONE series) series.

removable (R Series):

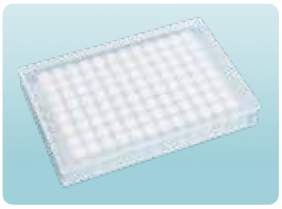
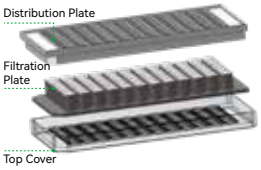
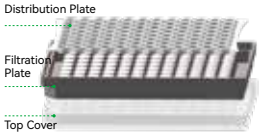
The removable Micro-Filter Plates are R series filtration plates, consisting of a filtration plate, membrane, and manifold. The easily removable design of the manifold makes it an ideal choice for analyses such as Elispot, PAMPA, and cell screening (migration, invasion, or chemotaxis).

Non-removable (NR Series):

The non-removable Micro-Filter Plates are NR series filtration plates, made up of a filtration plate, membrane, and manifold, with the manifold and filtration plate tightly welded. They are specifically developed for high-throughput use in automated workstations.

Integrated (ONE Series):

The integrated Micro-Filter Plates are ONE series filtration plates, consisting of a filtration plate and membrane, without a manifold. They can withstand greater centrifugal forces, reducing nonspecific binding and interference, making them particularly suitable for biochemical screening analyses.

Category	removable Micro-Filter Plates	Non-removable Micro-Filter Plates	Integrated Micro-Filter Plates
Product Line	R Series	NR Series	ONE Series
Filtration Plate Color	Transparent	Transparent	Transparent
Filtration Plate Material	PS	PS	PP
Distribution Plate Material	LEPE Transparent	LDPE Translucent	/
Maximum Plate Volume	350µl	350µl	600µl
Working Volume	50-250µl	50-250µl	50-500µl
Height	11.8mm	16.01mm	14.6mm
Length	128.2mm	128mm	128mm
Width	85.8mm	85.6mm	85.5mm
Filtration Area	0.28cm²	0.28cm²	0.44cm²
Plate Size	96 wells	96 wells	96 wells
Physical Image			
Engineering Drawing			
Negative Pressure Device	009807-B/009807-R	009807-NB/009807-NR	009807-OB/009807-OR

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Select Appropriate Membrane Based on Application

Filter Membrane Type	PVDF Low Protein Binding	MCE Mixed Cellulose Ester	PVDF High Protein Binding	PTFE
Common Applications	Sample Preparation, DNA Binding, Clinical Diagnostics, Protein Kinase	Elispot	Elispot, DNA Binding, Protein Binding, Lipid Kinase Assay	Total Drug Analysis, Solubility Testing, In-Plate Protein Precipitation
Filter Membrane Characteristics	Low Protein/Nucleic Acid Binding	High Protein/Nucleic Acid Binding	High Protein Binding	Resistant to Organic Solvents
Pore Size	0.22–1.2 µm	0.45 µm	0.45 µm	0.45 µm
Hydrophilic/ Hydrophobic	Both	Hydrophilic	Hydrophobic	Both
Non/Sterile	Both	Both	Both	Non-sterile
Plate Types	R Series/NR Series/ONE Series	R Series	R Series	R Series/NR Series/ONE Series

Choose Different Negative Pressure Devices Based on Different Series of Micro-Filter Plates

Category	Removable Micro-Filter Plates	Non-removable Micro-Filter Plates	Integrated Micro-Filter Plates
Product Line	R Series	NR Series	ONE Series
Filter Plate Color	Transparent	Transparent	Transparent
Filter Plate Substrate Material	PS	PS	PP
Flow Plate Material	LEPE Transparent	LDPE Semi-transparent	/
Negative Pressure Device	009807-B/009807-R	009807-NB/009807-NR	009807-OB/009807-OR

Negative Pressure Device Operating Procedure:

1.Place the filtration plate on the negative pressure device, ensuring the bottom edge of the filtration plate is in close contact with the silicone sealing strip of the device.

2.Add the sample to be filtered into the filtration plate. After adding the sample, cover the top of the filtration plate with a cover or silicone pad and start the vacuum pump connected to the negative pressure device to begin negative pressure filtration.

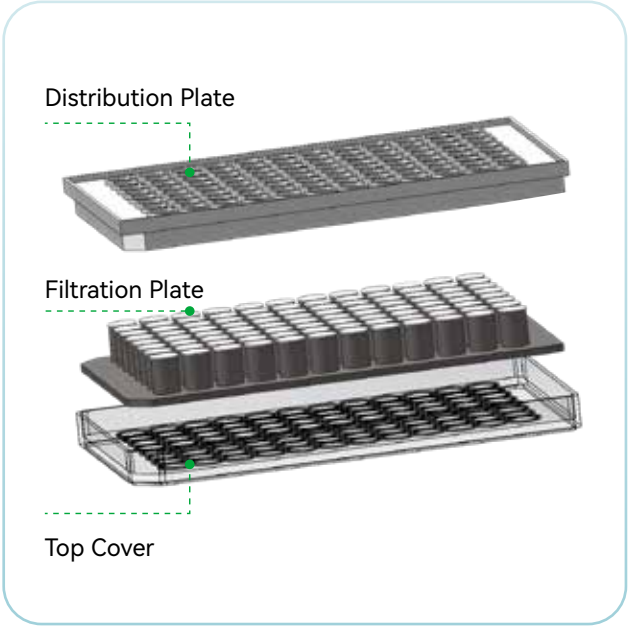
Features: The microfiltration negative pressure device is specifically designed for vacuum filtration systems, particularly suitable for standard 96-well Micro-Filter Plates. This negative pressure device consists of a corrosion-resistant anodized aluminum base, stainless steel brackets, metal grids, and includes necessary connectors and seals. The external vacuum pump features a pressure regulation valve (relief valve), vacuum pressure gauge, and a 12mm outer diameter vacuum tube. Different model numbers of the negative pressure device can be adapted to various specifications of 96-well filtration plates, allowing for selection based on needs.

3A:After all samples have been filtered, turn off the vacuum pump, release the vacuum inside the negative pressure device, and remove the filtration plate along with any remaining sample.

3B:Remove the upper support of the negative pressure device and take out the lower collection plate containing the sample filtrate for further processing.

SpinFlow® R Series Micro-Filter Plates

SpinFlow® removable Micro-Filter Plates (R Series) consist of three parts: the filtration plate, membrane, and distribution plate. The filtration plate is precisely injection molded from polystyrene and is compatible with various types and materials of filter membranes, such as polyvinylidene fluoride (PVDF), mixed cellulose esters (MCE), and polytetrafluoroethylene (PTFE). Each well of the plate is individually sealed, allowing seamless integration with removable distribution plates. The easy-to-remove design of the distribution plate is particularly suitable for experiments requiring observation of membrane structure, such as Elispot, PAMPA, and cell screening (migration, invasion, or chemotaxis).

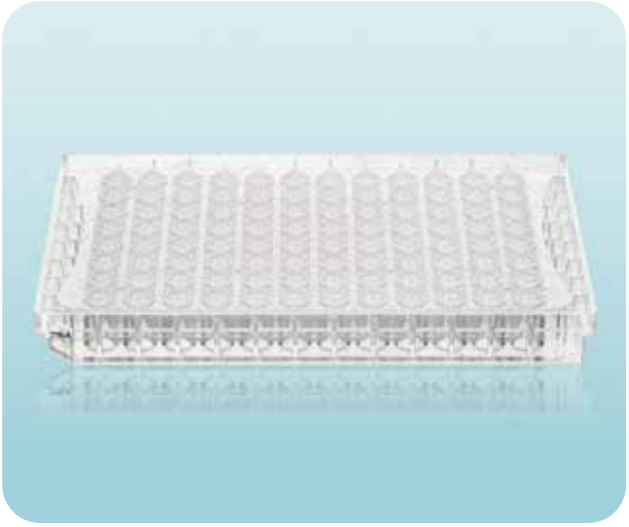


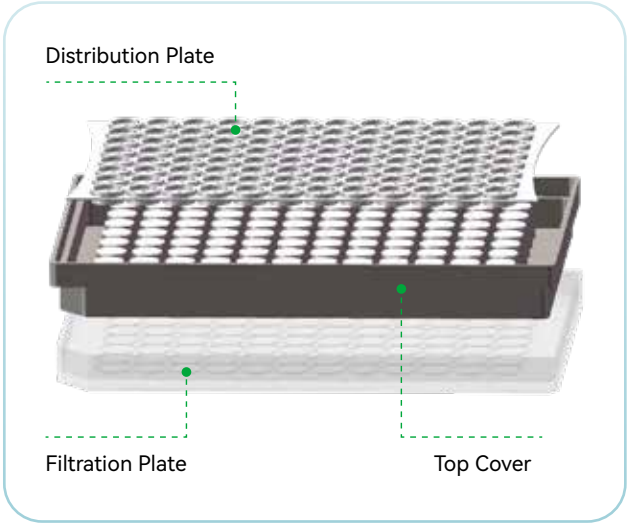
Ordering Information

Item Number	Product Description	Packaging Specifications
M0096-CA-45	96-well Micro-Filter Plates, 300μL, hydrophilic CA, 0.45μm	10 pieces/box
M0096-MCE-22	96-well Micro-Filter Plates, 300μL, hydrophilic MCE, 0.22μm	10 pieces/box
M0096-MCE-22-S	96-well Micro-Filter Plates, 300μL, hydrophilic MCE, 0.22μm, sterile	10 pieces/box
M0096-MCE-45	96-well Micro-Filter Plates, 300μL, hydrophilic MCE, 0.45μm	10 pieces/box
M0096-NL-22	96-well Micro-Filter Plates, 300μL, hydrophilic Nylon membrane, 0.22μm	10 pieces/box
M0096-PES-H-22	96-well Micro-Filter Plates, 300μL, hydrophilic PES, 0.22μm	10 pieces/box
M0096-PTFE-22	96-well Micro-Filter Plates, 300μL, organic PTFE, 0.22μm	10 pieces/box
M0096-PTFE-45	96-well Micro-Filter Plates, 300μL, organic PTFE, 0.45μm	10 pieces/box
M0096-PTFE-H-22	96-well Micro-Filter Plates, 300μL, hydrophilic PTFE, 0.22μm	10 pieces/box
M0096-PTFE-H-45	96-well Micro-Filter Plates, 300μL, hydrophilic PTFE, 0.45μm	10 pieces/box
M0096-PVDF-22	96-well Micro-Filter Plates, 300μL, organic PVDF, 0.22μm	10 pieces/box
M0096-PVDF-45	96-well Micro-Filter Plates, 300μL, organic PVDF, 0.45μm	10 pieces/box
M0096-PVDF-H-22	96-well Micro-Filter Plates, 300μL, hydrophilic PVDF, 0.22μm	10 pieces/box
M0096-PVDF-H-45	96-well Micro-Filter Plates, 300μL, hydrophilic PVDF, 0.45μm	10 pieces/box

SpinFlow® NR Series Micro-Filter Plates

The SpinFlow® non-removable Micro-Filter Plates (NR Series) consist of a filter plate, membrane, and flow plate. The filter plate is precision molded from polystyrene and is compatible with various types and materials of filter membranes, such as Polyvinylidene Fluoride (PVDF), Mixed Cellulose Esters (MCE), and Polytetrafluoroethylene (PTFE) Microfiltration membranes. Each hole in the plate is individually sealed and combines with a removable flow plate for seamless integration. The flow plate is tightly welded to the filter plate, specifically developed for high-throughput applications in automated workstations.



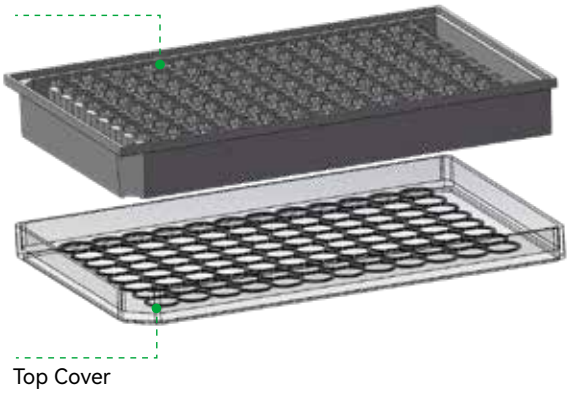


Ordering Information

Item Number	Product Description	Packaging Specifications
M0024-MCE-22-S	24-well Micro-Filter Plates, 7mL, hydrophilic MCE membrane, 0.22μm, with collection plate, sterile	2 sets/box
M0024-MCE-45	24-well Micro-Filter Plates, 7mL, MCE membrane, 0.45μm, with collection plate	2 sets/box
M0024-NY-22-S	24-well Micro-Filter Plates, 7mL, hydrophilic nylon membrane, 0.22μm, with collection plate, sterile	2 sets/box
M0024-PES-H-22	24-well Micro-Filter Plates, 7mL, hydrophilic PES membrane, 0.22μm, with collection plate	2 sets/box
M0024-PTFE-H-22-S	24-well Micro-Filter Plates, 7mL, hydrophilic PTFE membrane, 0.22μm, with collection plate, sterile	2 sets/box
M0024-PVDF-22	24-well Micro-Filter Plates, 7mL, hydrophobic PVDF membrane, 0.22μm, with collection plate	2 sets/box
M0024-PVDF-45	24-well Micro-Filter Plates, 7mL, hydrophobic PVDF membrane, 0.45μm, with collection plate	2 sets/box
MN096-CA-22	Non-removable 96-well Micro-Filter Plates, hydrophilic CA, 0.22μm	10 pieces/box
MN096-CA-22-S	Non-removable 96-well Micro-Filter Plates, hydrophilic CA, 0.22μm, sterile	10 pieces/box
MN096-CA-45	Non-removable 96-well Micro-Filter Plates, hydrophilic CA, 0.45μm	10 pieces/box
MN096-MCE-22	Non-removable 96-well Micro-Filter Plates, hydrophilic MCE, 0.22μm	10 pieces/box
MN096-MCE-45	Non-removable 96-well Micro-Filter Plates, hydrophilic MCE, 0.45μm	10 pieces/box
MN096-NY-22	Non-removable 96-well Micro-Filter Plates, hydrophilic nylon membrane, 0.22μm	10 pieces/box
MN096-NY-45	Non-removable 96-well Micro-Filter Plates, hydrophilic nylon membrane, 0.45μm	10 pieces/box
MN096-PES-22	Non-removable 96-well Micro-Filter Plates, hydrophilic PES, 0.22μm	10 pieces/box
MN096-PTFE-22	Non-removable 96-well Micro-Filter Plates, hydrophobic PTFE, 0.22μm	10 pieces/box
MN096-PTFE-45	Non-removable 96-well Micro-Filter Plates, hydrophobic PTFE, 0.45μm	10 pieces/box
MN096-PTFE-H-22	Non-removable 96-well Micro-Filter Plates, hydrophilic PTFE, 0.22μm	10 pieces/box
MN096-PTFE-H-45	Non-removable 96-well Micro-Filter Plates, hydrophilic PTFE, 0.45μm	10 pieces/box
MN096-PVDF-22	Non-removable 96-well Micro-Filter Plates, hydrophobic PVDF, 0.22μm	10 pieces/box
MN096-PVDF-45	Non-removable 96-well Micro-Filter Plates, hydrophobic PVDF, 0.45μm	10 pieces/box
MN096-PVDF-H-22-S	Non-removable 96-well Micro-Filter Plates, hydrophilic PVDF, 0.22μm, sterile	10 pieces/box
MN096-PVDF-H-45	Non-removable 96-well Micro-Filter Plates, hydrophilic PVDF, 0.45μm	10 pieces/box

SpinFlow® ONE Series Micro-Filter Plates

The SpinFlow® integrated Micro-Filter Plates are ONE Series filter plates made up of a filter plate and membrane, without a flow plate. The filter plate is formed by a single injection of polypropylene, combined with PTFE filter membranes, allowing for greater centrifugal force tolerance, reducing non-specific binding, and lowering interference, making it particularly suitable for biochemical screening analyses.

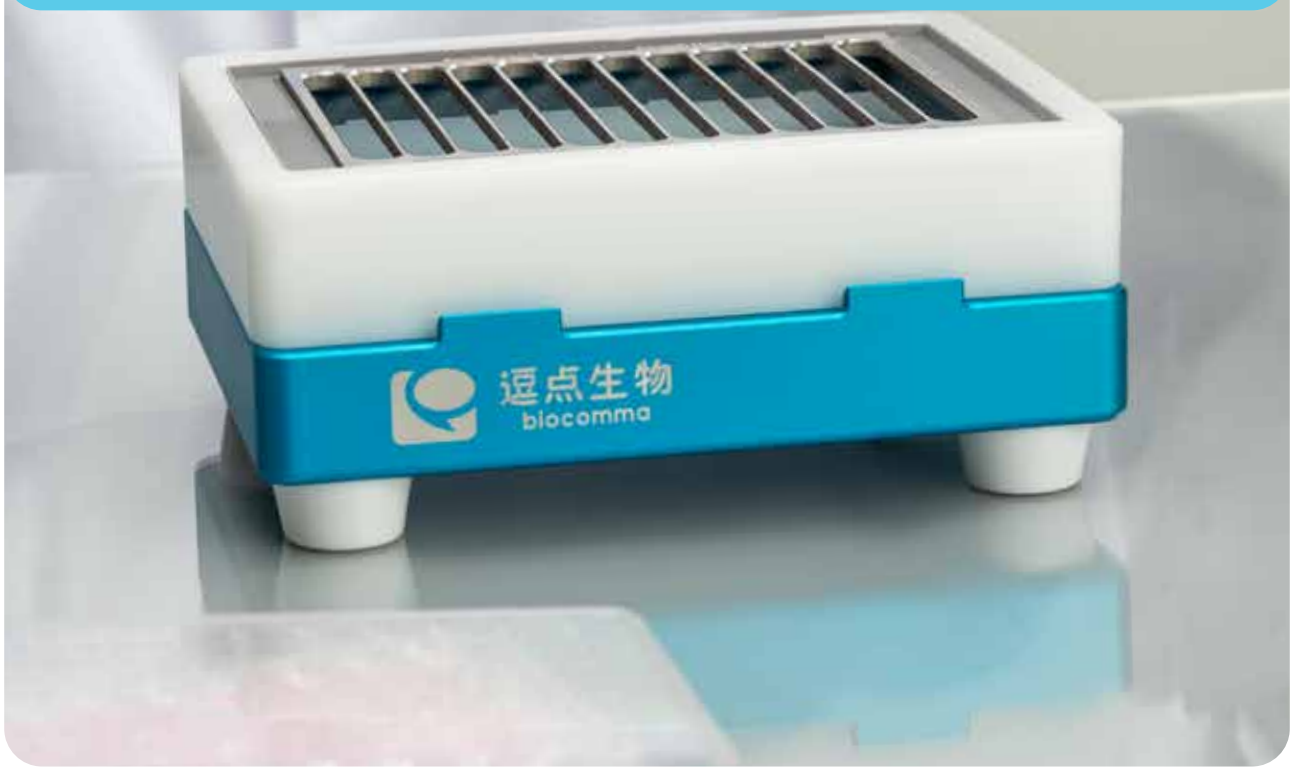


Ordering Information

Item Number	Product Description	Packaging Specifications
MY096-PTFE-45	Integrated 96-well Micro-Filter Plates, hydrophobic PTFE, 0.45μm	10 pieces/box
MY096-PTFE-45-S	Integrated 96-well Micro-Filter Plates, hydrophobic PTFE, 0.45μm, sterile	10 pieces/box
MY096-PTFE-22	Integrated 96-well Micro-Filter Plates, hydrophobic PTFE, 0.22μm	10 pieces/box
MY096-PTFE-22-S	Integrated 96-well Micro-Filter Plates, hydrophobic PTFE, 0.22μm, sterile	10 pieces/box
MY096-PTFE-H-22	Integrated 96-well Micro-Filter Plates, hydrophilic PTFE, 0.22μm	10 pieces/box
MY096-PTFE-H-22-S	Integrated 96-well Micro-Filter Plates, hydrophilic PTFE, 0.22μm, sterile	10 pieces/box
MY096-PTFE-H-45	Integrated 96-well Micro-Filter Plates, hydrophilic PTFE, 0.45μm	10 pieces/box
MY096-PTFE-H-45-S	Integrated 96-well Micro-Filter Plates, hydrophilic PTFE, 0.45μm, sterile	10 pieces/box

SpinFlow® Micro-Filter Plates Applications

SpinFlow® Micro-Filter Plates are reliable tools that promote drug development and life sciences research, primarily used for sterilization, protein kinase/phosphatase analysis, protein purification, receptor binding assays, protein binding determination, ELISPOT analysis, sample preparation, pre-sample filtration for mass spectrometry, and removal of fluorescent dyes. The applications may vary across different series of plates.



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SpinFlow® R Series Micro-Filter Plates Applications

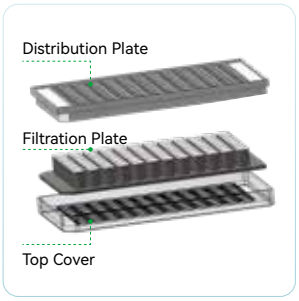
1.Sterilization

SpinFlow® R Series microporous filter products are recommended for sterilization using membranes with a pore size of 0.2μm.

Verification Method:

1.Use inoculated bacterial strains and filter through SpinFlow® R Series microporous filter products; the liquid should be clear with no bacterial growth, while the control group should undergo high-temperature and high-pressure sterilization.

2.Prepared cell culture media should be sterilized through the filter plate, with successful cell growth observed.



2.Sample Preparation Analysis

Pre-filtering and protein precipitation before analysis.

Investigation of the Impact of Different Precipitants on Different Brands of Protein Filter Plates				
Brand	Model Specification	Sample Type	Precipitant	Experimental Results
Competitor M	Hydrophobic PTFE-0.45μm (MSRPN0410)	Serum	Methanol	Completely blocked
		Serum	Acetonitrile	Clear filtrate; a small amount of white precipitate at the bottom of the filtrate
		BSA	Methanol	Individual pores blocked (Filtration to blocked pores = 10/16), all filtrates are turbid
		BSA	Acetonitrile	Some pores blocked, clear filtrate, filtrate volume 50~100μL
		Plasma	Methanol	Completely filtered, clear filtrate
		Plasma	Acetonitrile	Completely filtered, clear filtrate
SpinFlow® Microbial Filter Plate	Hydrophobic PTFE-0.22μm	Serum	Methanol	Completely blocked
		Serum	Acetonitrile	Clear filtrate; almost no white precipitate
		BSA	Methanol	Blocked (Filtration to blocked pores = 3/16), all filtrates are turbid
		BSA	Acetonitrile	Not completely filtered; each pore retains some liquid, clear filtrate, filtrate volume > 100μL
		Plasma	Methanol	Completely filtered, clear filtrate
		Plasma	Acetonitrile	Completely filtered, clear filtrate
SpinFlow® Microbial Filter Plate	疏水 PTFE-0.22μm	Serum	Methanol	Completely blocked
		Serum	Acetonitrile	Clear filtrate; each pore retains some liquid
		Plasma	Methanol	Completely filtered, clear filtrate
		Plasma	Acetonitrile	Clear filtrate; each pore retains some liquid
Competitor A	Protein Precipitation Plate (0.2μm PP), 1mL	Serum	Methanol	All filtered, all filtrates are turbid
		Serum	Acetonitrile	All filtered, all filtrates are clear
		BSA	Methanol	All filtered, all filtrates are turbid
		BSA	Acetonitrile	All filtered, all filtrates are clear
		Plasma	Methanol	All filtered, all filtrates are turbid
		Plasma	Acetonitrile	All filtered, all filtrates are clear
Copure® Traditional Protein Precipitation Plate	Protein Precipitation Plate, 1mL	Serum	Methanol	All filtered, all filtrates are turbid
		Serum	Acetonitrile	All filtered, all filtrates are clear
		BSA	Methanol	All filtered, all filtrates are turbid
		BSA	Acetonitrile	All filtered, all filtrates are clear
		Plasma	Methanol	All filtered, all filtrates are turbid; turbidity is lower than Competitor A
		Plasma	Acetonitrile	All filtered, all filtrates are clear

Conclusion:

1.The PTFE microbial filter plate used for protein precipitation shows no difference in effectiveness compared to Competitor M.

2.For plasma matrices, methanol or acetonitrile precipitation is recommended; for serum matrix, acetonitrile precipitation is preferred.

3.The effectiveness of protein filtration should not be evaluated using a 4% BSA solution precipitated with methanol, as Competitor M, Competitor A, SpinFlow® PTFE microbial filter plate, and Copure® traditional 1mL protein precipitation plate all exhibited turbidity in the filtrate when methanol was used as the precipitant for the 4% BSA solution.

3. Enzyme Analysis

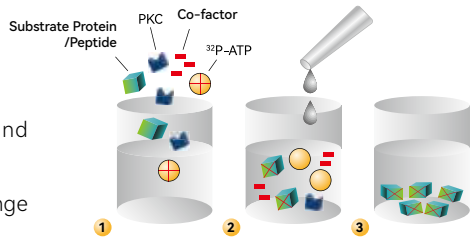
Application Examples

Phosphatase Analysis

1.Pre-wet and add protein kinase 32P-ATP, matrix protein, or oligopeptides, and cofactors; incubate so PKC transfers 32P from ATP to substrate proteins or peptides.

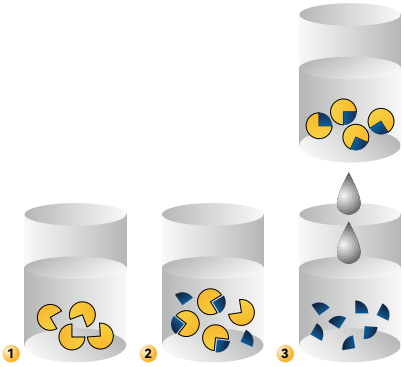
2.If conducting precipitation analysis, add ice-cold TCA; if conducting cation exchange analysis, add phosphate.

3.Collect proteins/peptides on the filter membrane; wash and dry the plates, then count.



4.Receptor Binding

Receptor binding assays are critical for the identification of lead drugs and their subsequent characterization. These assays are used to identify most known drug targets and typically employ membrane-based separation techniques to obtain the necessary ratio of “bound versus free” fragments for validation.



5.Microbial Filter Plates for ELISPOT Analysis

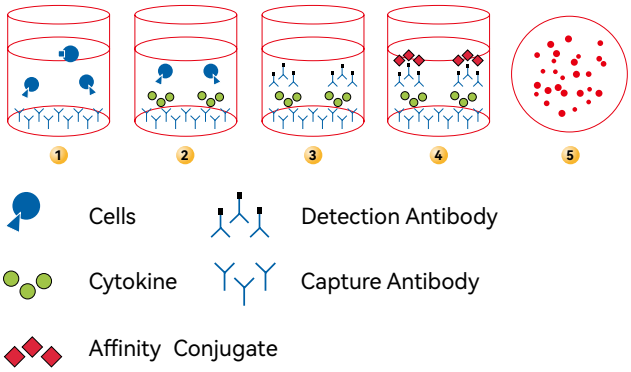
1.Add immune cells to the treated filter plates for incubation.

2.Cells secrete cytokines.

3.Remove cells, wash the plates, and add biotinylated detection antibodies.

4.Add streptavidin conjugate.

5.Add chromogenic substrate to form spots.



6.PAMPA Analysis

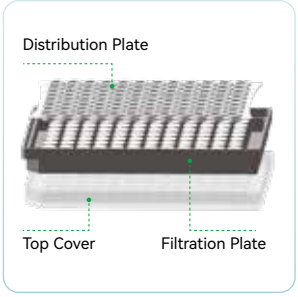
Hexane/Hexadecane Artificial Layer - PVDF

The Parallel Artificial Membrane Permeability Assay (PAMPA) applies a lecithin-containing inert organic solution coated on polyvinylidene fluoride or polycarbonate membranes. Lecithin can form a very stable bilayer in 96-well microplates, using this property of forming a film on supporting material to establish a PAMPA model that simulates passive diffusion absorption of oral drugs in the gastrointestinal tract.

SpinFlow® NR Series Non-removable Microbial Filter Plates Application

1.Sterilization

SpinFlow® NR Series microbial filter products are recommended for sterilization using a membrane with a pore size of 0.2μm.



Verification Method:

1.Using inoculated strains, filter through the SpinFlow® NR Series microbial filter product. The liquid should be clear with no bacterial growth; the control group undergoes high-temperature high-pressure sterilization.

2.Cell culture media prepared for filtering should grow well after sterilization through the filter plate.

2.Sample Preparation Analysis

1.Pre-filtering and protein precipitation before analysis.

Evaluation of Factors Affecting Different Protein Filtration Plates with Various Precipitating Agents				
Brand	Model/Specification	Sample Type	Precipitating Agent	Experimental Results
Competitor M	Hydrophobic PTFE-0.45μm	Serum	Methanol	Fully clogged
		Serum	Acetonitrile	Clear filtrate, slight white sediment at the bottom
		BSA	Methanol	Partial clogging (filtration/clogged wells = 10/16), cloudy filtrate
		BSA	Acetonitrile	Partial clogging, clear filtrate, filtrate volume 50~100μL
		Plasma	Methanol	Fully filtered, clear filtrate
		Plasma	Acetonitrile	Fully filtered, clear filtrate
SpinFlow® Micro-Filter Plates	Hydrophobic PTFE-0.45μm	Serum	Methanol	Fully clogged
		Serum	Acetonitrile	Clear filtrate, almost no white sediment
		BSA	Methanol	Clogging (filtration/clogged wells = 3/16), cloudy filtrate
		BSA	Acetonitrile	Not fully filtered, residual liquid in all wells, clear filtrate, filtrate volume >100μL
		Plasma	Methanol	Fully filtered, clear filtrate
		Plasma	Acetonitrile	Fully filtered, clear filtrate
SpinFlow® Micro-Filter Plates	Hydrophobic PTFE-0.22μm	Serum	Methanol	Fully clogged
		Serum	Acetonitrile	Clear filtrate, residual liquid in all wells
		Plasma	Methanol	Fully filtered, clear filtrate
		Plasma	Acetonitrile	Clear filtrate, residual liquid in all wells
Competitor A	Protein Precipitation Plate (0.2μm PP), 1mL	Serum	Methanol	Fully filtered, cloudy filtrate
		Serum	Acetonitrile	Fully filtered, clear filtrate
		BSA	Methanol	Fully filtered, cloudy filtrate
		BSA	Acetonitrile	Fully filtered, clear filtrate
		Plasma	Methanol	Fully filtered, cloudy filtrate
		Plasma	Acetonitrile	Fully filtered, clear filtrate
Copure® Traditional protein precipitation plate	Traditional Protein Precipitation Plate, 1mL	Serum	Methanol	Fully filtered, cloudy filtrate
		Serum	Acetonitrile	Fully filtered, clear filtrate
		BSA	Methanol	Fully filtered, cloudy filtrate
		BSA	Acetonitrile	Fully filtered, clear filtrate
		Plasma	Methanol	Fully filtered, cloudy filtrate (lower cloudiness than Competitor A)
		Plasma	Acetonitrile	Fully filtered, clear filtrate

Conclusions:

1.PTFE Micro-Filter Plates are equivalent to Competitor M for protein precipitation performance.

2.For plasma matrices, methanol or acetonitrile precipitation is recommended; for serum matrices, acetonitrile precipitation is preferred.

3.Methanol precipitation should not be used to evaluate the protein filtration performance of products with 4% BSA solutions, as all tested products (Competitor M, Competitor A, SpinFlow® PTFE Micro-Filter Plates, and Copure® Traditional 1mL Protein Precipitation Plate) produced cloudy filtrates when methanol was used to precipitate the 4% BSA solution.

3. Nylon Membrane - Toxicity Assessment

Mainly used for evaluating responses of multicellular organisms like Drosophila, C. elegans, and zebrafish embryos to toxic stimuli.

Evaluation Process:1.Introduce multicellular organisms into the nylon membrane filtration plate.

2.Add the target stimulus. 3.Measure the results.

SpinFlow® ONE Series Integrated Micro-Filter Plates Applications

1.Sterilization

Recommended to use a 0.2μm membrane for sterilization.

Validation Method:

1.Inoculated bacteria are filtered through the SpinFlow® ONE microfiltration product, resulting in clear liquid with no bacterial growth, validated by autoclaving.

2.Cell culture medium is sterilized through the filtration plate, leading to good cell growth.

2.Sample Preparation and Analysis

Filtration prior to instrument analysis and protein precipitation

Impact of Different Precipitants on Protein Filtration Plates from Various Brands				
Brand	Model Specifications	Sample Type	Precipitant	Experimental Results
Competitor M	Hydrophobic PTFE-0.45μm	Serum	Methanol	Completely blocked
		Serum	Acetonitrile	Filtrate clear, small amount of white precipitate at the bottom
		BSA	Methanol	Some wells blocked (10/16), all filtrates cloudy
		BSA	Acetonitrile	Partial blockage, filtrate clear, filtrate volume 50~100μL
		Plasma	Methanol	Fully filtered, filtrate clear
		Plasma	Acetonitrile	Fully filtered, filtrate clear
SpinFlow® Micro-Filter Plate	Hydrophobic PTFE-0.45μm	Serum	Methanol	Completely blocked
		Serum	Acetonitrile	Filtrate clear, almost no white precipitate
		BSA	Methanol	Blocked (3/16), all filtrates cloudy
		BSA	Acetonitrile	Not fully filtered, liquid remaining in each well, filtrate clear, volume >100μL
		Plasma	Methanol	Fully filtered, filtrate clear
		Plasma	Acetonitrile	Fully filtered, filtrate clear
SpinFlow® Micro-Filter Plate	Hydrophobic PTFE-0.22μm	Serum	Methanol	Completely blocked
		Serum	Acetonitrile	Filtrate clear, liquid remaining in each well
		Plasma	Methanol	Fully filtered, filtrate clear
		Plasma	Acetonitrile	Filtrate clear, liquid remaining in each well
Competitor A	Protein Precipitation Plate (0.2μm PP), 1mL	Serum	Methanol	Fully filtered, filtrate cloudy
		Serum	Acetonitrile	Fully filtered, filtrate clear
		BSA	Methanol	Fully filtered, filtrate cloudy
		BSA	Acetonitrile	Fully filtered, filtrate clear
		Plasma	Methanol	Fully filtered, filtrate cloudy
		Plasma	Acetonitrile	Fully filtered, filtrate clear
Copure® Traditional protein precipitation plate	Traditional Protein Precipitation Plate, 1mL	Serum	Methanol	Fully filtered, filtrate cloudy
		Serum	Acetonitrile	Fully filtered, filtrate clear
		BSA	Methanol	Fully filtered, filtrate cloudy
		BSA	Acetonitrile	Fully filtered, filtrate clear
		Plasma	Methanol	Fully filtered, filtrate cloudy (less cloudy than Competitor A)
		Plasma	Acetonitrile	Fully filtered, filtrate clear

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Conclusion:

1.The performance of PTFE Micro-Filter Plates for protein precipitation is comparable to that of Competitor M.

2.For plasma matrices, methanol or acetonitrile should be used for in-well precipitation; for serum matrices, acetonitrile is recommended for precipitation.

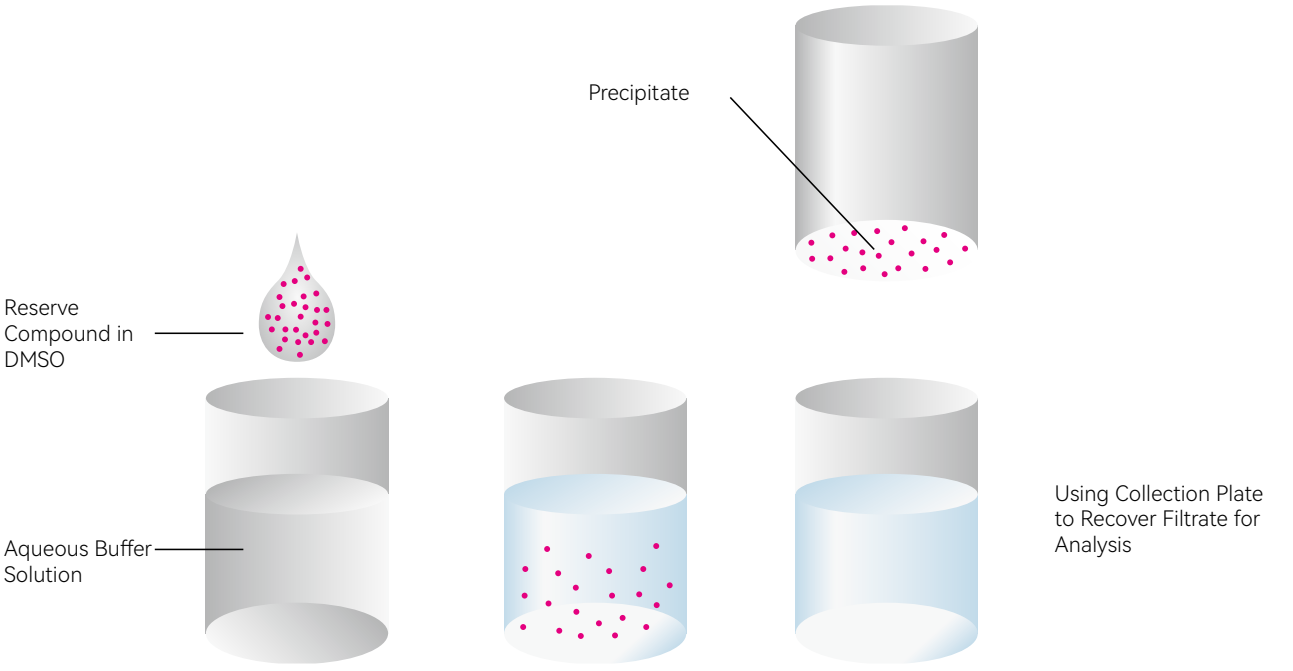
3.Using methanol to precipitate 4% BSA solutions is not suitable for evaluating the protein filtration performance of products, as Competitor M, Competitor A, SpinFlow® PTFE Micro-Filter Plates, and Copure® traditional 1mL protein precipitation plates all show cloudy filtrates when methanol is used as the precipitant for 4% BSA solutions.

3.Water Solubility Analysis

SpinFlow® ONE Series Micro-Filter Plates can be used to determine compound water solubility, an essential factor affecting the reliability. Insoluble precipitates in bioanalysis can result in false positives, and water solubility impacts absorption and bioavailability predictions.

Water Solubility Test:

1	1.Dissolve the compound in an organic solvent and add it to an aqueous buffer.
2	2.Shake for 90 minutes to precipitate the insoluble compound.
3	3.Vacuum filter the solution through a collection plate; the precipitate remains on the filter membrane. Analyze the filtrate in the collection plate to measure the remaining compound in the solution.



Example Application of SpinFlow® Micro-Filter Plates

1.1Determination of Ribavirin Drug Concentration in Human Serum

Total ion chromatograms and extracted ion chromatograms for Ribavirin in human serum (quantitative ion m/z = 113.08, qualitative ion m/z = 96.08) are shown in Figures 1-4. Ribavirin retention time is approximately 1.44 minutes. Figure 1: SpinFlow® 96-well PTFE Micro-Filter Plates used for serum sample preparation. Figure 2: Competitor M 96-well Micro-Filter Plates results. Figure 3: Copure® PPT Protein Precipitation Plate results. Figure 4: Competitor A PPT Protein Precipitation Plate results.The results show no significant differences across the plates.

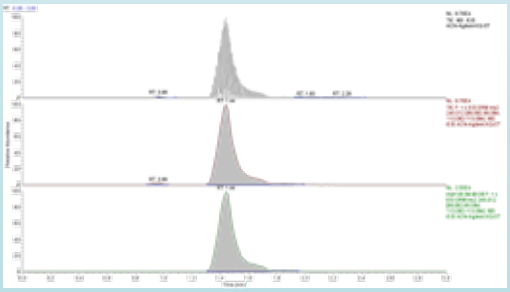


Figure 1: SpinFlow® 96-well PTFE 96 Well Plate

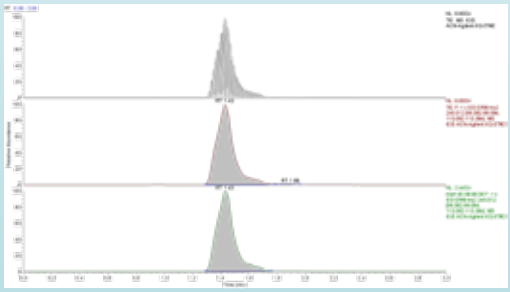


Figure 2: Competitor M 96 Well Plate

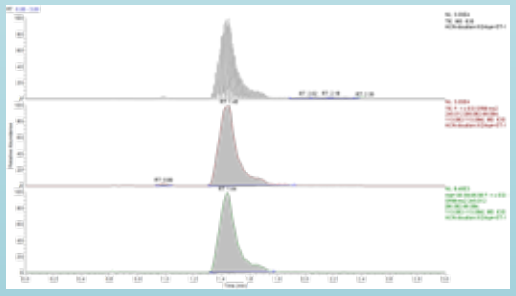


Figure 3: Copure® PPT 96 Well Plate

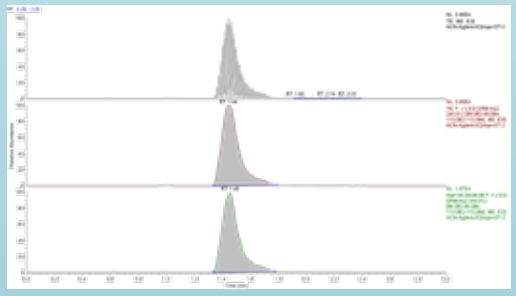


Figure 4: Competitor A brand PPT 96 Well Plate

1.2 Ribavirin Spiked Recovery Results

1.2 Compared to competitors, the spiked recovery rate and RSD of the SpinFlow®/Copure® PPT protein precipitation plates show no significant difference.

Details are in the table below:

Product	Filter Plate ID	Spiked Concentration (ng/mL)	Matrix Background	Average Recovery Rate (%)	RSD (%)
SpinFlow® PTFE 96 Well Plate	1	40.0	0	97.9	2.27
	2			100	
	3			102	
Competitor M 96 Well Plate	1	40.0	0	100	1.73
	2			102	
	3			98.4	
Copure® PPT 96 Well Plate	1	40.0	0	96.3	5.07
	2			98.8	
	3			89.5	
Competitor A PPT 96 Well Plate	1	40.0	0	94.7	1.82
	2			93.8	
	3			91.5	

SpinFlow® Micro-Filter Plates Product Performance Validation

1.Solvent Compatibility Test for Micro-Filter Plates

Reagent Type	Reagent Name	Concentration	Micro-Filter Plates							
			PES Membrane	MCE Membrane	Hydrophilic PTFE Membrane	Hydrophobic PTFE Membrane	Hydrophilic PVDF Membrane	Hydrophobic PVDF Membrane	Nylon	CA
Organic Solvents	Methanol	≥ AR	x	x	√	√	√	x	√	x
	Acetonitrile	≥ AR	x	x	√	√	x	x	√	x
	Ethanol	≥ AR	x	x	√	√	√	x	√	x
	Isopropanol	≥ AR	√	x	√	√	√	√	√	x
	Glycerol	≥ AR	√	√	√	√	√	√	√	x
	Ethyl acetate	≥ AR	x	x	x	x	x	x	x	x
	Hexane	≥ AR	√	√	√	√	√	x	√	x
	Xylene	≥ AR	x	x	x	x	x	x	x	x
	Petroleum ether	≥ AR	√	√	√	√	√	√	√	√
	Dichloromethane	≥ AR	x	x	x	x	x	x	x	x
	Chloroform	≥ AR	x	x	x	x	x	x	x	x
	Carbon tetrachloride	≥ AR	x	x	x	x	x	x	x	x
	Acetone	≥ AR	x	x	x	x	x	x	x	x
	Diethyl ether	≥ AR	x	x	x	x	x	x	x	x
	Methyl tert-butyl ether	≥ AR	x	x	x	x	x	x	x	x
	Methanol: Water	50：50	√	√	√	√	√	√	√	√
	Acetonitrile: Water	50：50	√	x	√	√	x	√	√	x
Acids	Acetic acid	≥ AR	√	x	√	√	√	√	√	x
	25% Acetic acid	25%	√	√	√	√	√	√	√	√
	Hydrochloric acid	≥ AR	√	√	x	√	√	√	x	√
	25% Hydrochloric acid	25%	√	√	√	√	√	√	√	√
	Sulfuric acid	≥ AR	√	x	√	√	√	√	x	√
	25% Sulfuric acid	25%	√	√	√	√	√	√	√	√
	Nitric acid	≥ AR	√	√	√	√	√	√	√	√
	25% Nitric acid	25%	√	√	√	√	√	√	√	√
	Phosphoric acid	≥ AR	√	√	√	√	√	√	√	x
	25% Phosphoric acid	25%	√	√	√	√	√	√	√	√
	Formic acid	AR	√	√	√	√	√	x	√	√
	25% Formic acid	25%	√	√	√	√	√	√	√	√
	Trichloroacetic acid	AR	x	√	√	√	√	√	x	√
	5% Trichloroacetic acid	5%	√	√	√	√	√	√	√	√
Bases	5% Ammonium hydroxide	5%	√	√	√	√	√	√	√	√
	4 mol/L Sodium hydroxide	4mol/L	√	√	√	√	√	√	√	√

Note: Add the corresponding reagent into the filter plate wells, with three wells per reagent. Let it sit for 30 minutes, then observe the condition inside the wells. Disassemble the flow distributor (PE), the filter plate (PS), and the membrane to check their condition. If all three parts remain intact, the reagent is considered compatible with the plate; if any part is damaged, it is deemed incompatible. " √ " indicates compatibility, "x" indicates incompatibility.

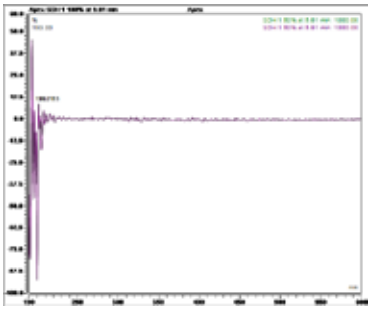
2.Leaching Test

Take 2 mL of deionized water and add it into the SpinFlow® 96-well Micro-Filter Plates, collect the filtrate, and analyze it using liquid chromatography. Perform a scan from 220 to 400 nm and compare it to the liquid before filtration. Six parallel measurements are conducted, and the results are presented as spectra. Under normal conditions, there should be no significant difference in the spectrum compared to the blank sample within the scanning range. The results are shown in the following figure.

Leaching Test Results

Sample (Plate 1)	Leaching
A2	否
B2	否
C2	否
D2	否
A3	否
B3	否
D3 (Baseline)	否
Blank	否

Leaching Test Results for 24-Well Plate



3.pH and Conductivity Test

Add 6 mL of deionized water into each well, filter (3000 r/min, 5 minutes), then place the filtrate in a centrifuge tube and measure its conductivity and pH value. The test results are shown in the table below.

Conductivity Test Results (Filtrate 6 mL)

Sample (6 mL)	Conductivity (μS/cm)	pH Value	Temperature (° C)
Sample 1	1.26	5.62	26.1
Sample 2	1.35	5.9	26.1
A1	1.54	5.72	26.1
A2	1.6	5.55	26.1
B1	1.7	5.69	26.1
B2	1.6	5.84	26.1
C1	1.5	5.67	26.1
C2	1.6	5.90	26.1
D1	1.7	5.77	26.1
D2	1.4	5.83	26.1
First-grade water	1.01	5.85	26.1

Remaining Liquid Volume Test Results

Sample	Before Sample (g)	After Sample (g)	Total Weight of Remaining Liquid in 8 Wells (g)	Average Remaining Liquid per Well (mL)
Filter Plate 2 A1-D1, A6-D6	82.0	81.2	0.744	0.0960

4.2 Test Results

Average remaining liquid per well: 0.0960 mL.

4.3 Polystyrene Colloid Retention Efficiency

Dilute polystyrene colloid with 0.01% Tween20 to create a solution containing a polystyrene colloid concentration of 0.05% (500 mg/kg). Filter 3 mL of the solution and measure the UV absorbance at 260 nm.

Summary of Polystyrene Colloid Filtration Test Results (using PES membrane as an example):

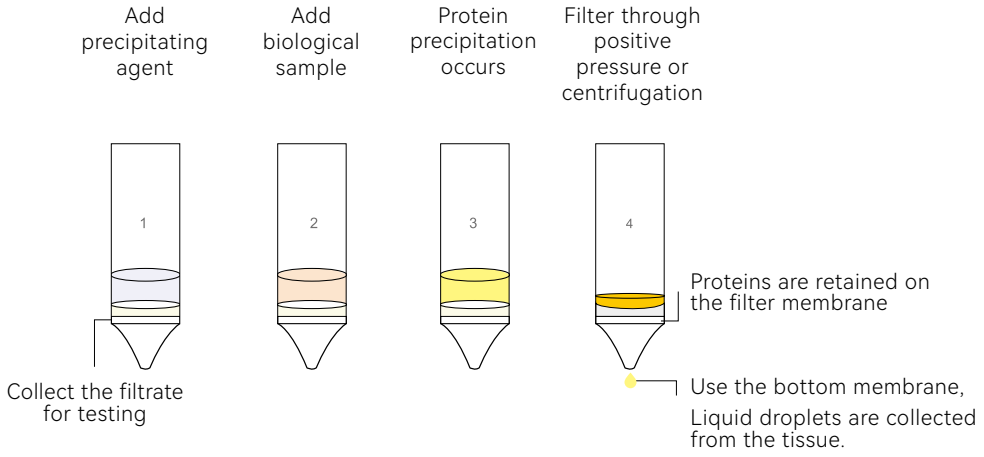
Membrane Pore Size	Polystyrene Colloid Particle Size	UV Absorption Before Filtration	UV Absorption After Filtration	Retention Efficiency	Filtration Conditions
0.22μm	0.3μm	0.505	ND	Qualified	3500rpm, 5min
	0.46μm	0.505	ND	Qualified	3500rpm, 5min
	0.6μm	0.505	ND	Qualified	3500rpm, 5min
0.45μm	0.6μm	0.505	ND	Qualified	3500rpm, 5min
	0.8μm	0.505	ND	Qualified	3500rpm, 5min
	1.0μm	0.505	ND	Qualified	3500rpm, 5min

Copure® 96 Well PPT Protein Precipitation Filter

The Copure® 96 Well PPT protein precipitation filter is specifically designed to remove proteins from biological fluid samples (plasma, serum, or blood) and is suitable for LC-MS/MS clinical detection research.

Features:

- Made with low-adsorption material filter membrane, resistant to pH 0-14
- The filter membrane is manufactured using a special process suitable for high-speed centrifugation without breaking
- Effectively traps precipitating agents without causing liquid dripping
- Applicable in clinical detection, pharmacokinetics, new drug development, and scientific research



General process for biological sample preparation using Copure® 96 Well Protein Precipitation Filter

Ordering Information

Item Number	Description	Packaging
MPPT9601	Copure® PPT 96 Well Protein Precipitation Filter, 1.0 mL/well	1 piece/box
MPPT9602	Copure® PPT 96 Well Protein Precipitation Filter, 2.0 mL/well	1 piece/box

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