Product Guideline

Syringe Filter

Orientfiltr Technology Co., Ltd.
Address: No.688, Xingfu Road, Chongchuan District, Nantong, Jiangsu, China. 226007
Email: info@orientfiltr.com
Website: www.orientfiltr.com

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Company Profile

As a global supplier of filtration, separations and purification products, Orientfiltr provides products, solutions and core values to our partners in industrial water purification, food and beverage, pharmaceutical, healthcare&life sciences, bio-technology, chemical, electronics, aerospace and broad industrial markets.

Orientfiltr not just only owns a wide range of organic polymer filter media, filter and off-the shelf components, but also have an added-value engineer team to provide technical support, core and process validation services etc., enabling customers to obviously reduce the design period for new products launches. Our all divisions work in highly regulated environments with extremely high quality standards, like ISO 9001:2008, ISO 14001:2004, ISO 13485 etc.

Thanks to our application and development centers, Orientfiltr is also able to offer an extremely efficient and personalized service to meet customers' needs: from raw materials selection, product struction design to performance trial testing and mass production.

No matter what, no matter where, we will innovate and collaborate to deliver the one thing our customers need most.

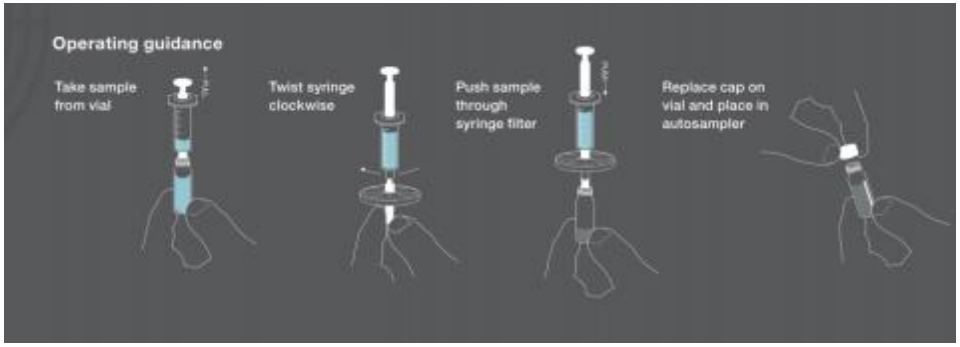
What is Syringe Filter?

Syringe filters are single-use, membrane-based devices used for the removal of particulate impurities from liquid and gas samples prior to analysis by methods such as HPLC, ion chromatography, gas chromatography, ICP, and dissolution testing. Proper filtration of samples improves the quality and consistency of analytical results and decreases instrument downtime. Disposable syringe filters are commonly used for fast and efficient filtering.

Applications:

- Sample preparation for HPLC and UHPLC analysis
- Protect columns and extend column lifetimes
- Low sample volume compatibility
- High integrity sample preparation
- Color coding for easy identification and selection of the correct membrane and pore size
- Integrated prefilter options for enhanced removal of particulates

Operation Guide:



Syringe Filter Selection:

How to choose the correct filter for your chromatographic application.

• Sample volume

Sample volume	Diameter	
> 120mL	30mm	
> 100 mL	25mm	
> 20mL	17mm	
> 10 mL	13mm	
> 1 mL	4mm	

• Membrane compatibility with sample type and technique

Sample Type	Technique
Standard HPLC samples/solvents	Nylon (NY)
	RC
	PVDF
Standard GC samples/solvents	PTFE
UV spectrometry	PVDF
Capillary electrophoresis	PES
High particle load	Glass Fiber (GF)
Protein analysis	PVDF
Protein removal	GF
Trace metals	PES
Aggressive andnonpolar solvent	PTFE
Biologicalsample preparation	CA
Protein and peptide samples, general HPLC	Polypropylene (PP)
Highly particulated samples	GF

PVDF (Hydrophilic/Hydrophobic) syringe filters

Superior membrane quality for HPLC. Hydrophilic PVDF syringe filters do not require pre-wetting for use with aqueous samples. Hydrophobic PVDF filters require pre-wetting with an alcohol before use with aqueous samples.

- Low non-specific binding with exceptional chemical resistance
- Hydrophilic membrane provides excellent flow rates and low binding coefficients
- Certified for chromatographic performance
- Compatible with a wide range of aqueous and organic-based sample environments
- Recommended for HPLC and UHPLC. PVDF syringe filters have a well defined pore structure, giving effective retention of particles without excessive pore blockage. Compatible with aqueous and most organic solvents. They are excellent general filters for HPLC andorganic solvent sample clean up.

Applications:

- HPLC and organic solvent sample preparation and clean up
- Protein based samples with high non-specific binding
- Environmental water samples

Specifications:

Membrane:	HPLC certified PVDF(Hydrophilic/Hydrophobic)
Max. operating temperature:	<100 °C
Housing:	Medical grade, virgin polypropylene
Pore Size:	0.22 μm, 0.45 μm
Chemical Incompatibilities:	DMF, DMSO, MEK, acetone and most caustic solutions > 6N

Regenerated cellulose(RC) syringe filters

Superior chemical resistance, optimized for biological sample recoveries.

- Hydrophilic membrane provides excellent flow rates and extremely low binding coefficients
- Superior choice for biological assays, gel capsule dissolution testing, protein sample matrixes
- Compatible with a wide range of aqueous and organic-based sample environments
- Recommended for reverse phase and normal phase HPLC. Regenerated cellulose syringe filters are ideally suited for almost any laboratory procedure,from HPLC sample preparation to dissolution sample testing. Regenerated cellulose possesses superior chemical resistance in either aqueous or organ- ic-based sample environments. Its extremely low biological-based binding coefficient is ideally suited for maximum sample recoveries of biologi- cal-based assays. Regenerated cellulose contains no binders, surfactants or wetting agents to assure minimal extractables in analytical procedures.

Applications:

- HPLC and organic solvents ample preparation and cleanup
- Dissolution sample analysis, especially high-binding tablets or capsules
- Protein-based samples with high non-specificbinding
- Sample analysis which require maximum recoveries
- Analysis requiring low non-specific binding overawide pH range

Specifications:

Membrane:	HPLC certified Cellulose acetate
Max. operating temperature:	<100 °C
Housing:	Medical grade, virgin polypropylene
Pore Size:	0.22 μm, 0.45 μm
Chemical Incompatibilities:	Sulfuric acid, hydrochloric acid, phosphoric acid or nitric acid > 25%, DMF, phenol

Cellulose acetate syringe filters

For filtering of aqueous solutions or biological samples.

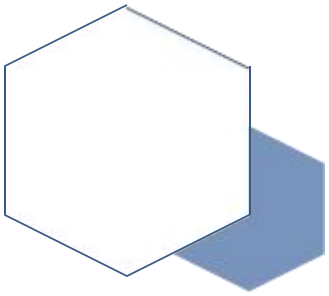
- Hydrophilic membrane provides excellent flow rates and extremely low protein-binding coefficients
- Superior choice for biological assays, gel capsule dissolution testing, protein sample matrixes
- Recommended for aqueous HPLC A physically strong membrane which can be used with heated liquids.

Applications:

- Protein-based samples with high non-specific binding
- Sample analysis which require maximum recoveries

Specifications:

Membrane:	Binder free Glass fiber
Max. operating temperature:	<100 °C
Housing:	Medical grade, virgin polypropylene
Pore Size:	0.22 μm, 0.45 μm
Chemical Incompatibilities:	Acids, NaOH, dichloromethane, chloroform,ketones, DMSO, THF



Glass fiber (GF) syringe filters

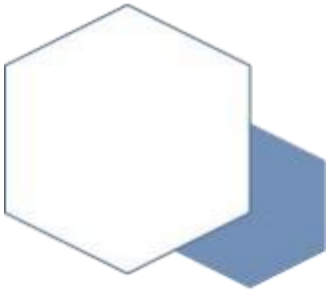
- For large particulate removal.
- Increased sample throughput
- Low extraction neutral borosilicate glass
- For use with viscous or particle-laden samples GMF filters are available in a range of porosities.

Applications:

- Clarification
- Pre-filtering of suspensions

Specifications:

Membrane:	Binder free Glass fiber
Max.operating temperature:	<100°C
Housing:	Medical grade,virgin polypropylene
Pore Size:	0.22μm,0.45μm
Chemical Incompatibilities:	Limited resistance with ammonia, NaOH and KOH solutions



PTFE (Hydrophobic and Hydrophilic) syringe filters

- Excellent chemical resistance for use with organic matrices
- Excellent flow rates and high loading capacities
- Exceptional temperature stability
- Organic solvent recommended
- Hydrophilic PTFE can be used for the same application but no pre-wetting of the membrane is required . PTFE syringe filters are applicable for filtration of gaseous or organic solvent-based samples. Both membrane types exhibits broad chemical resistance and unsurpassed temperature stability to address aggressive sample matrixes and extreme temperature situations. The hydrophobic PTFE filter can be utilized as a moisture barrier in venting applications.

PTFE hydrophobic membranes require pre-treatment with alcohol before being suitable for aqueous or high aqueous/organic samples. Do not use directly with aqueous solutions.

Applications:

- HPLC and organic solvent sample preparation and clean up
- Dissolution sample analysis
- General sample preparation prior to analytical analysis
- Elevated temperature samples, caustic or acidic solutions

Specifications:

Membrane:	PTFE (Hydrophobic and Hydrophilic)
Max. operating temperature:	<100 °C
Housing:	Medical grade, virgin polypropylene
Pore Size:	0.22 µm, 0.45 µm, 1.0µm....
Chemical Incompatibilities:	• Perchloric acid • Methylene chloride (limited exposure) • Dioxane, DMF, formic acid > 50% • Aqueous-based sample matrix (unless filter is pre-wetted with an alcohol)

Nylon syringe filters

. Naturally hydrophilic with broad chemical resistance

. Excellent flow rates and high-throughput loading

. HPLC recommended

Hydrophilic nylon is extremely well suited for aqueous or organic sample preparation and HPLC, GC or dissolution sample analysis. Due to its excellent flow characteristics and mechanical stability, nylon offers the best combination of physical parameters to meet the most stringent analytical needs.

Applications:

. HPLC and organic solvent sample preparation and clean up

. Dissolution sample analysis

. General sample preparation prior to analytical analysis

. Mixed sample matrix of aqueous or organic dissolved analytes

Specifications:

Membrane:	HPLC certified nylon
Max. operating temperature:	<100 °C
Housing:	Medical grade, virgin polypropylene
Pore Size:	0.22 µm, 0.45 µm, 1.0µm....
Chemical Incompatibilities:	. Perchloric acid . Methylene chloride (limited exposure) . Dioxane, DMF, formic acid > 50% . Aqueous-based sample matrix (unless filter is pre-wetted with an alcohol)

PES syringe filters — Ion chromatography (IC) certified

Precise results in sensitive analysis of ionic analytes.

- Certified for low-level IC interference by ICP analysis
- Hydrophilic membrane provides excellent flow rates and low binding coefficients
- Low affinity for binding drugs, ideal for dissolution testing procedures

This hydrophilic polymer has excellent cleanliness and is compatible with a wide range of solvents. It is the membrane of choice for ion chro matography applications.

Applications:

- IC sample preparation and analysis
- Dissolution testing

Specifications:

Membrane:	IC Certified PES
Max. operating temperature:	<100 °C
Housing:	Medical grade, virgin polypropylene
Pore Size:	0.22 µm, 0.45 µm
Chemical Incompatibilities:	• Protein-based samples in aqueous solutions • Concentrated acids, chloromethane, chloroform, hexane, acetone, MEK, THF, DMSO