PHENEX™

Syringe Filters

Performance and Protection

phenomenex®

. . . breaking with tradition℠

A Product You Can Trust

Benefits of Using Phenex™ Syringe Filters Daily:

- Less system down time
- Consistent, reproducible results
- Increased column lifetime

Quality filtration products from Phenomenex offer a convenient and inexpensive way to clarify all your samples - for peace of mind and improved analytical results.

Phenex syringe filters are designed for efficient and cost-effective rapid filtration of almost any solution prior to analysis, and are optimized for superior flow rates and high-thoughput.

Phenex offers a wide variety of membranes ideal for any application. The housing attaches to any standard Luer lock syringe, so the sample can easily be pushed through the membrane with minimal pressure. The result is a particulate-free eluent that is ready for use with HPLC, GC, or other analytical techniques.

Protect Your Column and Equipment

Particulates Trapped

As a part of good laboratory practice (GLP), chromatography samples and mobile phase solutions should be filtered prior to injection / use. Not only will filtering prolong the life of the analytical column, it will also protect your system, and improve the accuracy of test results by removing unwanted particles. Sample filtration also helps reduce system down-time and equipment replacement, thus saving both time and money.

Prefiltering your sample and mobile phase solutions for particulates and microbial growth prior to analysis is critical to preventing column and frit blockage, undue wear on detectors, pumps, valves, injector seals, and abnormally high operating pressures. Non-filtered samples can also lead to non-reproducible analytical results and significant instrument downtime.

Particulate-free Sample

Filtering every sample before injection is the easiest way to improve your results, to protect your system, and extend column lifetime.

Designed for Your Applications

Environmental

Water, wastewater, soil and sludge, and pollution control samples are especially challenging. No matter the sample type, Phenex offers filtration products to meet your demanding requirements.

Pharmaceutical / Biotech

At every stage of the drug discovery process target compounds must be isolated, purified, and prepared prior to testing. Sample complexity in DMPK work can be even more challenging. Difficult samples such as serum, urine and other physiological fluids are easily filtered and clarified using Phenex syringe filters.

Clinical / Toxicology

Removal of particulate matter to sub-micron levels is critical before any clinical sample is injected into an HPLC, GC or mass spectrometer. At every stage of toxicology, samples must be prepared prior to testing. In today's fast-paced environment, rapid and simple sample preparation is a must. Phenex is designed for higher flow rates and throughputs than those of competing products.

Food and Beverage

Food safety is more important than ever and decreasing detection limits are making analysis even more challenging. Accurate and reliable testing is critical to ensure food safety. Phenex filters are routinely used in preparation for analysis of pesticides, herbicides, fungicides, flavors and fragrances. For samples with large amounts of particulate and/or large fibrous matter, use a glass fiber prefilter.

Application / Sample*	Recommended Filter	First Alternative
HPLC and GC Sample Prep	RC	PTFE
Aggressive or Pure Organic Solvents	PTFE	RC
Protein Analysis / Biological Samples	PES	RC
High Particulate Loads	GF + RC	GF + NY
Environmental Methods	RC	PTFE
Food and Beverage	RC	PTFE
Clinical / Toxicology	RC	PES
Dissolution Testing	RC	PTFE
Ion Chromatography	RC	PES
Trace Metals (ICP-MS, AAS)	RC	PES
Capillary Electrophoresis (CE)	RC	PES
Tissue Cultures, Media, Buffers	GF/CA	PES

* Removal of high particulate matter with a glass fiber prefilter is critical before any drug, tox, or dirty environmental sample is filtered to ensure the highest syringe filter membrane performance.

Generally, 0.45 µm porosity filters are used to remove particulates from samples and mobile phase solutions. For sterile-filtration, a 0.20 µm porosity filter can be used.

Two Choices for Most Applications

1 For Aqueous and Mixed Organic Solutions

Regenerated Cellulose (RC)

As an universal hydrophilic membrane, RC is widely used in chromatography for the clarification of aqueous samples and solvents. Due to its ultra-low binding capabilities, RC membranes are an excellent choice for proteins, peptides and other biomolecules.

2 For 100 % Organic Solutions

Polytetrafluoroethylene (PTFE, Teflon®)

PTFE is an inherently hydrophobic membrane, excellent for filtration of organic-based, highly acidic or basic samples and solvents. Widely used in chromatography, it is especially well suited for the clarification of non-aqueous samples. Although this membrane is hydrophobic, it can be made hydrophilic by wetting the membrane with alcohol and then flushing with deionized water.

Or Consider

Additional Syringe Filter Membranes

Membrane Types	Recommended Uses
PES (Polyethersulfone)	Polyethersulfone (PES), a hydrophilic membrane with fast flow, high-throughput characteristics, with ultra-low protein binding. It is ideally suited for use in life sciences applications. The PES membrane offers better chemical resistance than cellulose acetate. Recommended for filtering critical biological sampling, tissue culture media, additives, and buffers.
NY (Nylon)	Nylon (NY) has inherent hydrophilic characteristics and works well for filtration of many aqueous and mixed-organic samples. Nylon exhibits a high non-specific affinity for proteins. Phenomenex recommends Phenex-RC for application requiring low non-specific adsorption of proteins.
CA (Cellulose Acetate)	Cellulose Acetate (CA) membranes exhibit ultra-low protein binding and are broadly used in the filtration of biological samples. In combination with a glass pre-filter (Phenex-GF/CA), this membrane is excellent for filtration of tissue culture media, general biological sample filtration and clarification.
GF (Glass Fiber)	Glass Fiber (GF) filters are made of inert borosilicate glass and have a nominal 1.2 µm pore size. They are commonly used with highly viscous samples or samples containing high concentrations of particulate matter (e.g., food analysis, biological samples, soil samples, fermentation broth samples, removal of yeasts, molds, etc.). Glass Fiber filters can be used alone or in conjunction with other Phenex filter membranes such as the 0.45 µm pore Phenex-RC filter to reduce clogging of the membrane and optimize flow.

High Performance Guaranteed

If Phenex Syringe Filters do not perform as well or better than your current syringe filter product of similar membrane, diameter and pore size, send in your comparative data within 45 days and keep the Phenex products for FREE!

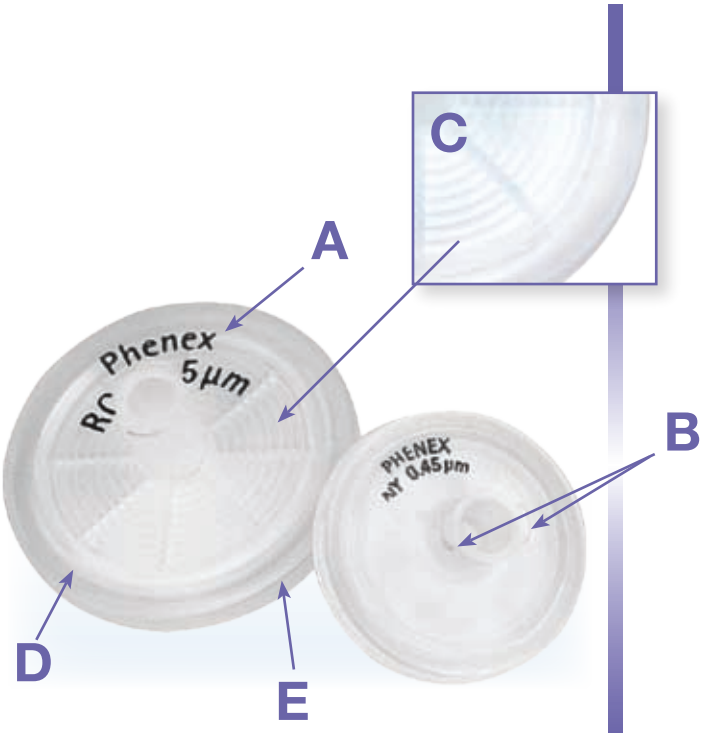
Avoid Unnecessary Problems

Using low-quality, low-cost filters can lead to sample contamination by introducing filter membrane and housing extractables directly into your sample.

All Phenex filters are made with the highest grade materials available to remove any unwanted interferents.

Phenex Helps Reduce:

- Extraneous peaks
- False quantitation
- Sample co-elution
- Instrument damage



A Identification
Membrane type and pore size are clearly marked on individual syringe filters

B Luer Lock Inlet Tip
Secures connections to prevent “blow off”

C Sample Distribution Rings
Creates even sample distribution for high sample flow rates

D Medical Grade Polymer Housing
Offers the most inert syringe filter and helps eliminate unwanted secondary interactions with the filter housing

E Ultrasonically Welded
Ensures robust housing - filter integrity

Enhanced Quality

Assures Reliability

After packaging in a clean-room environment, all finished products undergo final quality control. Each production lot is sampled using a random sampling procedure, and individual syringe filter units are inspected and tested for integrity by a comprehensive range of tests.

Each production lot is not released until all in-process and final quality control specifications are met. Further selective testing is periodically performed. The shelf life of packaged product is also monitored and controlled within our warehouses to ensure efficient stock rotation.

The result is a reliable, reproducible, and contaminate-free product.

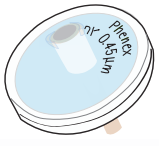
HPLC/GC Approved

Phenomenex Phenex syringe filters are manufactured by state-of-the-art production machines and must pass a battery of certification methods and tests. Both manufacturing and packaging processes adhere to the most current quality systems and methods such as:

- ISO
- DIN
- ASTM

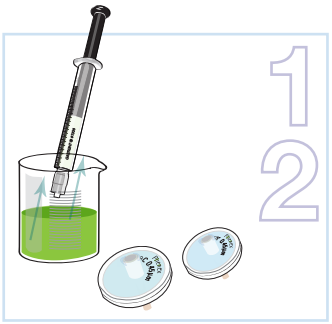
Critical specifications are set for:

- Bubble point
- Burst pressure
- Membrane adsorption (protein)
- Flow rate
- UV extractables (by HPLC)



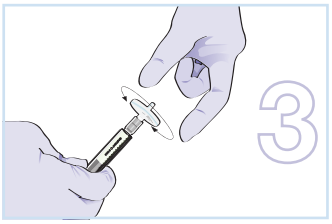
Simple to Use

Phenex Instructions



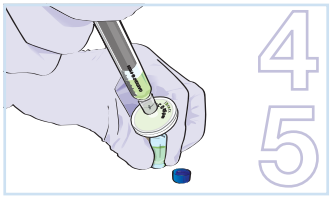
Loading

1. Fill the syringe with the liquid sample. Allow a small amount of air (approximately 10% of the sample volume) to enter the syringe. The air is used as a purge to minimize fluid retention when expelling the sample from the syringe (Step 5 below).
2. Select the correct syringe filter per this guide (Refer to page 8).



Assembly

3. Twist the luer lock end of the filter securely onto the syringe. (Caution: Do not use syringes without a matching luer lock, otherwise the pressure applied may cause the filter to come off unexpectedly).

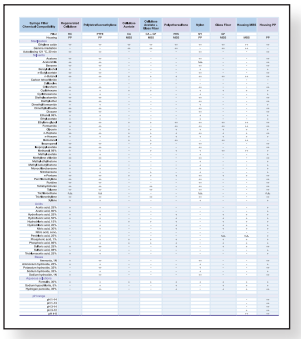


Filtration

4. To begin filtration, direct the syringe filter outlet tip into the collection vessel and apply gentle pressure to the syringe plunger. (Caution: Small syringes can generate excessive pressures).
5. Push the liquid sample, as well as the remaining air, through the syringe filter to maximize sample recovery.

Filter Chemical Compatibility Chart

Chemical compatibility is essential when selecting the proper syringe filter. A reference chart is included with every box detailing the compatibility of Phenex syringe filters with the most common solvents.



Selection Guide

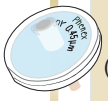
1 Select filter diameter based on sample volume

If your sample volume is:		
< 2 mL Sample Volume	**2 to 10 mL Sample Volume**	**10 to 100 mL Sample Volume**
4 mm Diameter	15 - 17 mm Diameter	25 - 28 mm Diameter
		

2 Select pore size based on the nature of your sample and chromatographic method

Sample Description	Recommended Filter Pore Size
General aqueous or mixed organic samples prior to HPLC analysis with column packed with > 3 µm particles. General clarification of GC, SFC, CE, and GPC samples.	0.45 µm 
Viscous samples or samples containing high levels of particulate matter.	
General aqueous or mixed organic samples prior to HPLC analysis with columns packed with < 3 µm particles. Removal of fine particulate matter prior to GC, SFC, CE, and GPC samples.	0.20 µm 
Gas samples prior to GC. Liquid samples prior to LC/MS. Other particulate-sensitive methods.	
Viscous samples such as serum, plasma, or other biological matrices. Solutions with high particulate load, (e.g., some environmental or food and beverage applications).	Glass Fiber filter with 0.45 µm filter

3 Select filter membrane according to the characteristics of your sample and filtering objective



Aqueous			Solvents	
			Non-Aqueous	Aqueous Mixtures
Solvent Mixtures	Tissue Culture Media, Buffers	Protein Analysis / Biological Samples	Hydrophobic	Hydrophilic
RC (Regenerated Cellulose)	CA (Cellulose Acetate)	PES (Polyethersulfone)	PTFE (Polytetrafluoroethylene)	RC (Regenerated Cellulose)

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Ordering Information

Membrane Type/Size	4 mm Diameter for < 2 mL sample volumes			15 - 17 mm Diameter for 2 - 10 mL sample volumes			25 - 28 mm Diameter for 10 - 100 mL sample volumes		
	Part No.	Unit	Price	Part No.	Unit	Price	Part No.	Unit	Price
0.45 µm									
Phenex-RC (Regenerated Cellulose)	AF0-3103-12	100/Pk		AF0-2103-12	100/Pk		AF0-8103-12 [5]	100/Pk	
	AF0-3103-52	500/Pk		AF0-2103-52	500/Pk		AF0-8103-52 [5]	500/Pk	
Phenex-PES [3] (Polyethersulfone)	—	—		AF2-5108-12 [1]	100/Pk		AF0-8108-12 [7]	100/Pk	
	—	—		—	—		AF0-8108-52 [7]	500/Pk	
Phenex-PTFE [6] (Polytetrafluoroethylene)	AF0-3102-12	100/Pk		AF0-2102-12	100/Pk		AF0-1102-12	100/Pk	
	AF0-3102-52	500/Pk		AF0-2102-52	500/Pk		AF0-1102-52	500/Pk	
Phenex-NY (Nylon)	AF3-3107-12	100/Pk		AF2-5107-12 [1]	100/Pk		AF0-1107-12	100/Pk	
	AF3-3107-52	500/Pk		AF2-5107-52 [1]	500/Pk		AF0-1107-52	500/Pk	
Phenex-GF/CA [2,3,4,7] (Glass Fiber/Cellulose Acetate)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a CA membrane. Excellent for filtration of tissue culture media, general biological sample filtration and clarification.						AF0-8B09-12 [7]	100/Pk	
							AF0-8B09-52 [7]	500/Pk	
0.20 µm									
Phenex-RC (Regenerated Cellulose)	AF0-3203-12	100/Pk		AF0-2203-12	100/Pk		AF0-8203-12 [5]	100/Pk	
	AF0-3203-52	500/Pk		AF0-2203-52	500/Pk		AF0-8203-52 [5]	500/Pk	
Phenex-PES [3] (Polyethersulfone)	—	—		—	—		AF0-8208-12 [7]	100/Pk	
	—	—		—	—		AF0-8208-52 [7]	500/Pk	
Phenex-PTFE [6] (Polytetrafluoroethylene)	AF0-3202-12	100/Pk		AF0-2202-12	100/Pk		AF0-1202-12	100/Pk	
	AF0-3202-52	500/Pk		AF0-2202-52	500/Pk		AF0-1202-52	500/Pk	
Phenex-NY (Nylon)	AF3-3207-12	100/Pk		AF2-5207-12 [1]	100/Pk		AF0-1207-12	100/Pk	
	AF3-3207-52	500/Pk		AF2-5207-52 [1]	500/Pk		AF0-1207-52	500/Pk	
Phenex-GF/CA [2,3,4,7] (Glass Fiber/Cellulose Acetate)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a CA membrane. Excellent for filtration of tissue culture media, general biological sample filtration and clarification.						AF0-8A09-12 [7]	100/Pk	
							AF0-8A09-52 [7]	500/Pk	
1.20 µm									
Phenex-GF [2,3] (Glass Fiber)	Prefiltration of heavily contaminated or highly viscous samples. When used in-line preceding a membrane filter, clogging of the membrane filter is prevented and sample clean up is optimized.						AF0-8505-12 [7]	100/Pk	
							AF0-8505-52 [7]	500/Pk	

Above syringe filters are non-sterile.
Housing is made of medical-grade polypropylene (PP), unless otherwise indicated.

guarantee

If Phenex Syringe Filters do not perform as well or better than your current syringe filter product of similar membrane, diameter and pore size, send in your comparative data within 45 days and keep the Phenex products for FREE!

1. 17 mm diameter.
2. Glass fiber filters are 28 mm diameter and made of borosilicate. They will remove 90 % of all particles >1.2 µm.
3. Housing material is methacrylate butadiene styrene (MBS) polymerisate. Also known as Cryolite.
4. Cellulose acetate is surfactant-free.
5. 26 mm diameter.
6. Hydrophobic membrane. Can be made hydrophilic by pre-wetting with IPA.
7. 28 mm Diameter.

Get significant savings on large quantity purchases. Additional dimensions and membrane types are available. Please contact your local Phenomenex technical consultant or distributor for availability or assistance.

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