PALL Laboratory

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Achieve Optimal Results

In Analytical Chemistry Sample Preparation and Mobile Phase Filtration

*Filtration. Separation. Solution.*SM

Proven Performance for Confident Results

Whether you are processing single samples or thousands of samples at a time, you can count on our excellent quality and reliability.

In 1974, Pall Laboratory revolutionized sample preparation for analytical chemists with the development of the Acrodisc® syringe filter. Today, we partner with scientists around the world to develop distinctive filtration and separation products for a wide range of processing volumes.

We are constantly looking for new ways to expand our product offering to meet your needs and ease your application challenges. Our product innovations are the result of understanding your applications and valuing the amazing contributions your work can make to the quality of all our lives.

Whether you are pursuing goals in life science, pharmaceutical methods, research and development, quality control, or specialty environmental applications, we commit to not only deliver a product that works, but to look beyond what simply works and deliver a product that truly makes a difference.

Focused on producing products that give you better results for high throughput sample preparation.

Pall Corporation is one of the few companies to offer a variety of products made from the same materials of construction, allowing for single- or multiple-sample processing for your analytical techniques. We bring together membranes with superior performance, outstanding housing materials, and devices designed to maximize processing accuracy and speed.

Select the device configuration most appropriate for your application, then select one of our patented membranes with the characteristics you need most... and see what a difference Pall can make.

Multi-Sample Processing

AcroPrep™ Advance Filter Plates
See pages 6-7 for more information.

- Perfect for smaller sample sizes in combinatorial chemistry cleavage applications
- Makes concentration and final filtration for SPE faster
- Great for numerous samples with HPLC sample preparation/clarification
- Perform quick and accurate metabolic studies

Single-Sample Processing

Acrodisc PSF Syringe Filters (Automated Applications)
See pages 8-10 for more information.

- Acrodisc PSF syringe filters are designed to be compatible with automated workstations
- Smooth operation and worry-free performance 24 hours a day
- For unattended processing of large numbers of samples with robotic workstations

Traditional Acrodisc Syringe Filters (Manual Applications)
See pages 11-13 for more information.

- Broad line of syringe filters for all your HPLC/UHPLC needs
- Wide range of device sizes for minimal sample hold-up and easy dispensing into autosampler vials

wwPTFE Nanosep® MF Centrifugal Devices
See page 14 for more information.

- For applications requiring maximum filtrate recovery from limited sample volumes

Filter Media Selection is as Easy as 1-2-3

Pall's broad selection of membrane chemistries ensures optimal performance for your application.

Pall's superior media separation technology ensures protection of your analytical instruments and supports the integrity of your analytical results. Pall's capabilities ensure:

- Accurate pore size ratings for better chromatography and instrument/column protection
- Uniform membrane materials (lot-to-lot) to provide consistent analytical results
- Low extractable materials for less chromatographic interference
- Materials of construction selected specifically for analytical analysis with lower extractables and lower API adsorption

1 Consider Chemical Compatibility

Chemical compatibility is defined as the ability of a filter material to resist select chemicals so that the pore structure is not adversely affected by chemical exposure, and the filter material does not shed particles or fibers to add extractables. For example, nylon is not recommended for strong acidic solutions due to incompatibility. The chemical compatibility chart on page 17 will help you make the right choice.

Temperature, time, concentration, applied pressure, and length of exposure also affect compatibility.

Extractable Materials

Contaminants that elute from the filter media are best prevented by the membrane manufacturer. Pall Laboratory specifically selects the highest grade of materials and performs rigorous extraction methods on our membrane products to reduce the occurrence of undesired artifacts. Choosing membranes that are compatible with your fluids and experimental conditions will reduce or eliminate extractables.

HPLC Certified for Low Extractables

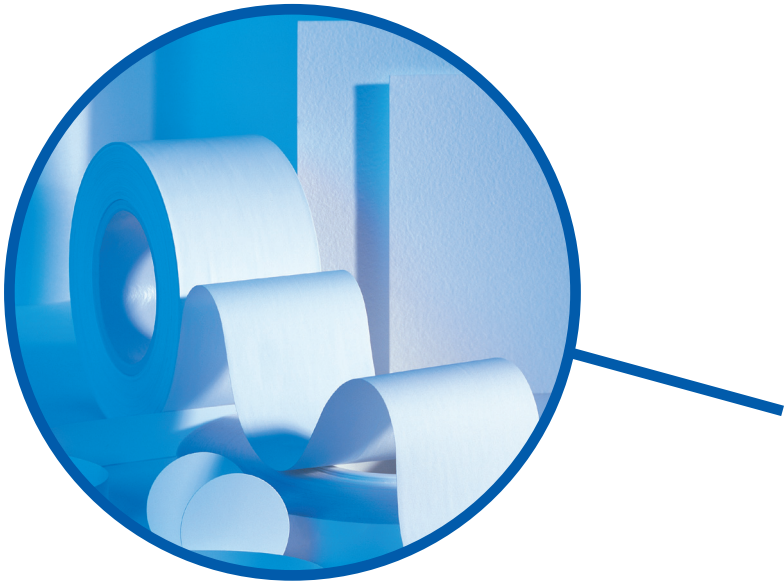
Pall Laboratory HPLC certification provides assurance that analytical results will not be compromised by extractable filter materials. To verify low levels of extractables, samples of HPLC Acrodisc and Acrodisc PSF syringe filters are randomly chosen and tested for compatibility with common solvents using UV detection. Does not include Versapor®, or Supor® membrane versions.

IC Certified for Low Levels of Inorganic Extractables

Pall Laboratory certified Ion Chromatography (IC) Acrodisc and Acrodisc PSF syringe filters have been tested using a highly sensitive IC protocol to monitor ionic extractables. Actual background levels of filter extractables are typically less than 20 ppb for chloride, 6 ppb for nitrate, 1 ppb for phosphate, and 10 ppb for sulfate.

Binding

Membranes may chemically interact with the sample through electrostatic, ionic, covalent, hydrogen bonding, or other interactions. Binding can be a desirable or undesirable characteristic depending on the requirements of the application. Choose wwPTFE membrane for applications requiring low binding.



Media Selection	Proteinaceous	General Aqueous	Non-Aggressive Organic	Aggressive Organic
wwPTFE (water wettable hydrophillic polytetrafluoroethene) – wwPTFE is an all-purpose, hydrophilic membrane for aqueous, acidic, basic, non-aggressive organic, and aggressive organic solutions. wwPTFE membrane offers low protein binding and low levels of UV-absorbing extractables.	●	●	●	●
PTFE Membrane – Exceptional chemical and temperature compatibility make this membrane ideal for harsh chemicals that destroy other membrane materials.	■	■	●	●
Nylon Membrane – This versatile filter for both aqueous and solvent-based sample filtration exhibits excellent chemical compatibility with esters, bases, and alcohols. Not recommended for acids > 1 N or halogenated solvents.	▲**	●	▲	■
PVDF Membrane – Compatible with many organic and non-organic solvents making it ideal for a wide range of applications. Not recommended for acetone, DMF, DMSO, or bases > 6 N.	●	●	▲	■
Glass Fiber Media – Maximize throughput for extremely particulate-laden samples.	●	●	▲	■
Supor (PES) Membrane for Ion Chromatography (IC) – Optimized to provide the most consistent results when analyzing ionic species, even for the most sensitive analyses. Certified for low levels of ionic extractables.	●	●	▲	■
Hydrophilic Membranes for General Aqueous Samples – Widely used in dissolution testing, choose from a variety of pore sizes and membrane types for prefiltration and clarification including Supor, and Versapor membranes.	●	●	▲	■

● **Recommended** ▲ **Suitable** ■ **Not Recommended**

***Dependent on protein type and concentration.*

2 Consider Effective Filtration Area (EFA)

The particulate contained within a fluid affects the life of a filter. As particles are removed from a filter, they block pores and reduce the useable portion of the filter. Fluids with particulate loads will plug a filter more quickly than "clean" fluids. Increasing the EFA can lengthen the life of a filter.

The following table outlines general guidelines for the most appropriate filter size for different volumes of liquid.

Volume to be Filtered	Filter Type	Typical Hold-Up Volume
< 500 µL	Nanosep MF Device	< 2 µL
< 900 µL	AcroPrep Advance 1 mL Filter Plate	< 18 µL/well
< 10 mL	13 mm Acrodisc Syringe Filter (Minispike)	< 14 µL
< 10 mL	13 mm Acrodisc Syringe Filter	< 30 µL
< 100 mL	25 mm Acrodisc Syringe Filter	< 150 µL
< 125 mL	25 mm Acrodisc PSF Syringe Filter	< 200 µL

3 Choose the Right Pore Size

Pore size is best selected by considering the instrumentation used for analysis. UV/V spectrophotometers may only require 1 µm filtration; HPLC analysis may require 0.45 µm filtration; and UHPLC will require 0.2 µm filtration due to the size of the column packing, beads, and internal frits. The filter material's pore size is determined by the diameter of the smallest particle that is to be retained with a defined, high degree of efficiency.

For standard liquid chromatography systems using columns with 5 µm or larger packings, the filtration industry standard is 0.45 µm for syringe filters and mobile phase membranes. For columns with packings smaller than 5 µm, UHPLC, microbore columns, or when concerned about microbial growth, a 0.2 µm filter is recommended.

To clarify samples or when processing difficult-to-filter solutions, 1 to 5 µm pore sizes or glass fiber filters are suggested. Prefilters generally precede smaller pore size final filters and allow the user to process larger fluid volumes before the filter plugs.

AcroPrep Advance Filter Plates for Sample Clean-Up in Analytical Applications

As samples get smaller and more numerous, you need new methods for high throughput sample preparation. We are ready to help with high throughput screening, combinatorial chemistry, and sample clean-up in analytical or solid-phase extraction applications.

Special Features

Worry-Free Performance
The robotic-friendly design has a rigid, single-piece construction, designed in accordance with American National Standards Institute (ANSI) specifications.

No Crosstalk
Membranes are sealed in separate wells using a proprietary sealing technology and extended flow directors eliminate crosstalk of filtrate. Our proprietary design also eliminates weeping for aqueous solutions and drastically reduces weeping for organic solutions.

Chemically Resistant Plate Assembly
Constructed from chemically-resistant, biologically-inert polypropylene.

Serialized Barcode
Serialized barcode label allows for the use of automated tracking systems.

Applications by Membrane Type

wwPTFE Membrane

- HPLC sample preparation and clarification
- Metabolic studies
- Applications that use harsh organics
- Combinatorial chemistry library screens
- Solvent-based applications

PTFE Membrane

- Molecular synthesis
- Drug synthesis reactions

Glass Fiber Media

- Gross fractionation
- Cell-based assays

Glass Fiber Over Supor Membrane

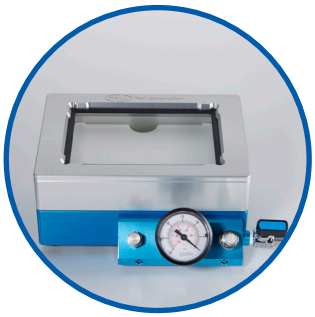
- Clarification of cell lysates and tissue homogenates
- Preparation of proteinaceous solutions
- Applications that require prefiltration

Mustang® Membrane

- Protein fractionation
- Protein capture
- Antibody purification

Vacuum Manifold Designed to Perfectly Fit AcroPrep Filter Plates

The multi-well plate vacuum manifold is an anodized aluminum manifold that has been designed and optimized for vacuum filtration of Pall's multi-well filter plates.



Ordering Information

AcroPrep Advance 96-Well Filter Plates (Natural)

VWR Cat. No.	Pall Part No.	Description	Pkg
76308-642	8582	350 µL 0.2 µm wwPTFE membrane	10/pkg
76308-644	8584	350 µL 0.45 µm wwPTFE membrane	10/pkg
76308-646	8682	1 mL 0.2 µm wwPTFE membrane	5/pkg
76308-648	8684	1 mL 0.45 µm wwPTFE membrane	5/pkg
76308-650	8782	2 mL 0.2 µm wwPTFE membrane	5/pkg
76308-652	8784	2 mL 0.45 µm wwPTFE membrane	5/pkg

AcroPrep Advance 96-Well Filter Plates (Natural)

VWR Cat. No.	Pall Part No.	Description	Pkg
89137-184	8047	350 µL 0.2 µm PTFE membrane	10/pkg
89137-186	8048	350 µL 0.45 µm PTFE membrane	10/pkg
89135-692	8147	1 mL 0.2 µm PTFE membrane	5/pkg
89135-694	8148	1 mL 0.45 µm PTFE membrane	5/pkg
89135-688	8131	1 mL 1.0 µm, glass fiber media	5/pkg
97052-130	8175	1 mL 3.0 µm glass fiber media/0.2 µm Supor membrane	5/pkg
89135-704	8171	1 mL 0.8 µm, Mustang Q membrane	5/pkg
89135-706	8172	1 mL 0.8 µm, Mustang S membrane	5/pkg
89135-710	8247	2 mL 0.2 µm PTFE membrane	5/pkg

Accessories and Replacement Parts

VWR Cat. No.	Pall Part No.	Description	Pkg
16003-836	5017	Multi-well plate vacuum manifold	1/pkg
89030-420	5225	Adapter collar for centrifugation	2/pkg
89137-188	8001	AcroPrep Advance multi-well plate lids	10/pkg

Three Powerful HPLC Sample Preparation Benefits in One Acrodisc PSF Syringe Filter

1 Automation Certification for Smooth Operation and Worry-Free Performance 24 Hours a Day

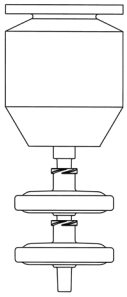
Pall Laboratory has specifically designed and certified our Acrodisc PSF syringe filters to be fully compatible and reliable for use with automated equipment. The following special features make our syringe filters reliable for worry-free performance 24 hours a day:

- Smooth filter-to-filter release
- Consistent turret advancement
- Exceptional housing strength
- Strict "outside filter geometry"

Acrodisc PSF syringe filters from Pall Laboratory are the only syringe filters to receive the Automation Certified guarantee. This certification is only granted to syringe filters that meet the stringent requirements for automated dispensing and robotic handling.

Special Features

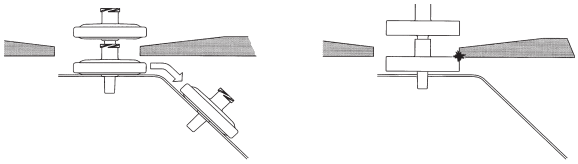
Smooth Filter-to-Filter Release



The Acrodisc PSF syringe filter has been designed so the filters cannot be forced too tightly together or to the automation components, allowing for a smooth release, while still meeting ANSI/ISO filter luer standards.

Consistent Turret Advancement

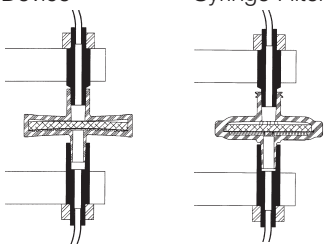
The filter's quick-releasing luers separate easily, and the slightly rounded upper shoulder allows the filter to consistently slide under the wedge. This results in trouble-free separation from the filter stack and smooth filter advancement along the workstation's track.



Exceptional Housing Strength

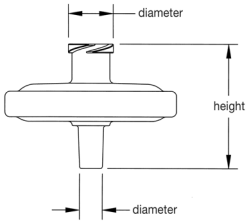
The specially designed support ribbing, thick device walls, and proprietary housing weld ensure a robust seal, as well as a filter housing that can withstand excessive force both internally and externally.

Competitive Device | Acrodisc PSF Syringe Filter



Strict "Outside Filter Geometry"

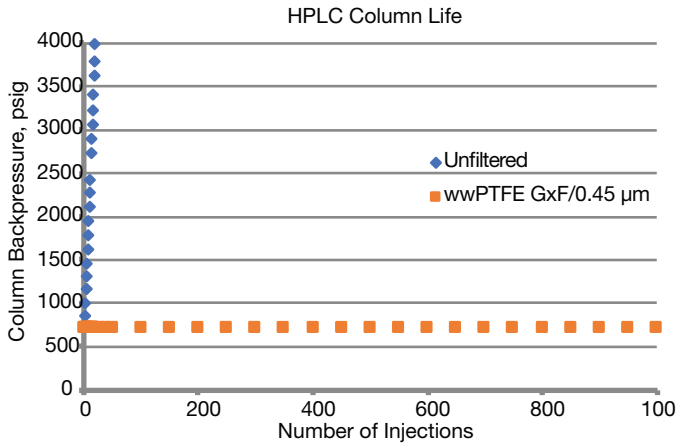
Strict dimensional specifications in height and width ensure proper alignment and smooth operation.



2 Best Protection for HPLC Columns—Extending Column Life as Much as 52 Times

Plugging is the most frequently encountered cause of High Performance Liquid Chromatography (HPLC) column failure by analytical chemists and analysts. Injection of samples containing particulates will eventually block the column inlet, cause high column back-pressure, and shorten the normal lifetime of the column. Operation of pump components, injectors, and detectors is expected to be less troublesome when fluids are filtered. Pall Acrodisc One™ syringe filters with wwPTFE membrane offer the most efficient removal of particulate and prolong the life of HPLC system components.

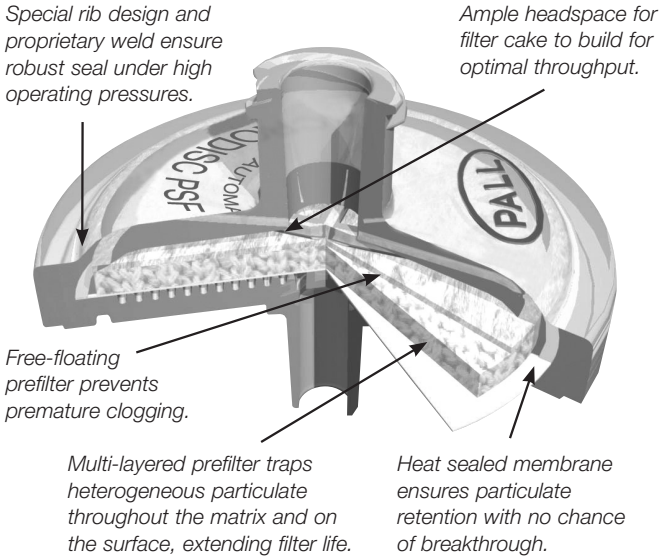
Effects of Filters on HPLC Column Life



Effects of Filters on HPLC Column Life following injections of unfiltered and filtered 0.05% latex sphere suspensions (1). With unfiltered samples, the column failed due to plugging after 19 injections. Samples backpressure was observed after 1000 injections of samples filtered with Pall Acrodisc One syringe filters with wwPTFE membrane.

3 GxF Multi-Layered Prefilter Provides Maximum Throughput

The Acrodisc PSF syringe filter has a serial glass fiber prefilter to allow for two to four times the throughput and faster flow rates than standard glass fiber prefilter devices. The multi-layered prefilter traps particulate rated from > 40 to 1 µm.



Applications

- Sample preparation for HPLC, UHPLC, IC, and GC
- Dissolution testing
- Automated workstations
- Clarifying samples heavily laden with particulates
  - *Environmental groundwater*
  - *Pulp and paper*
  - *Food and beverage*

Reference Material

Also available online in our Literature Library at www.pall.com/lab.

- Product Data, Acrodisc PSF Syringe Filter

Ordering Information

Acrodisc One PSF Syringe Filters with wwPTFE Membrane, 25 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
76308-662	AP-4910	0.2 µm	200/pkg
76308-664	AP-4911	0.2 µm, Autopack tubes	200/pkg
76308-666	AP-4912	0.2 µm	1000/pkg
76308-668	AP-4913	0.2 µm GXF/wwPTFE	200/pkg
76308-670	AP-4914	0.2 µm GF/wwPTFE, Autopack tubes	200/pkg
76308-672	AP-4915	0.2 µm GXF/wwPTFE	1000/pkg
76308-674	AP-4916	0.45 µm	200/pkg
76308-676	AP-4917	0.45 µm, Autopack tubes	200/pkg
76308-678	AP-4918	0.45 µm	1000/pkg
76308-680	AP-4919	0.45 µm GXF/wwPTFE	200/pkg
76308-682	AP-4920	0.45 µm GXF/wwPTFE, Autopack tubes	200/pkg
76308-684	AP-4921	0.45 µm GXF/wwPTFE	1000/pkg

Acrodisc PSF Syringe Filters with PTFE Membrane, 25 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-384	AP-4225	0.2 µm	50/pkg, 200/cs
28143-392	AP-4521	0.2 µm	1000/pkg
28143-903	AP-4518	0.45 µm, AutoPack tubes	25/pkg, 200/cs
28143-866	AP-4219	0.45 µm	50/pkg, 200/cs
28143-884	AP-4501	0.45 µm	1000/pkg
97027-944	AP-4790	GxF/0.2 µm	50/pkg, 200/cs
97027-946	AP-4791	GxF/0.2 µm	1000/pkg
28143-869	AP-4301	GxF/0.45 µm, AutoPack tubes	25/pkg, 200/cs
28143-872	AP-4303	GxF/0.45 µm	50/pkg, 200/cs
28143-870	AP-4302	GxF/0.45 µm	1000/pkg

Acrodisc PSF Syringe Filters with Nylon Membrane, 25 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-274	AP-4436	0.2 µm	50/pkg, 200/cs
28143-278	AP-4522	0.2 µm	1000/pkg
28143-901	AP-4517	0.45 µm, AutoPack tubes	25/pkg, 200/cs
28143-882	AP-4438	0.45 µm	50/pkg, 200/cs
28143-886	AP-4502	0.45 µm	1000/pkg
97027-938	AP-4787	GxF/0.2 µm	50/pkg, 200/cs
97027-940	AP-4788	GxF/0.2 µm	1000/pkg
28143-915	AP-4548	GxF/0.45 µm, AutoPack tubes	25/pkg, 200/cs
28143-910	AP-4549	GxF/0.45 µm	50/pkg, 200/cs
28143-912	AP-4528	GxF/0.45 µm	1000/pkg

Acrodisc PSF Syringe Filters with Glass Fiber, 25 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-907	AP-4527	GxF/Glass, AutoPack tubes	25/pkg, 200/cs
28143-904	AP-4523	GxF/Glass	50/pkg, 200/cs
28143-908	AP-4529	GxF/Glass	1000/pkg

Acrodisc PSF Syringe Filters with PVDF Membrane, 25 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
97027-962	AP-4796	0.2 µm	50/pkg, 200/cs
97027-964	AP-4797	0.2 µm	1000/pkg
16003-722	AP-4519	0.45 µm, AutoPack tubes	25/pkg, 200/cs
16003-724	AP-4408	0.45 µm	50/pkg, 200/cs
16003-720	AP-4500	0.45 µm	1000/pkg
97027-948	AP-4792	GxF/0.2 µm, AutoPack tubes	25/pkg, 200/cs
97027-950	AP-4793	GxF/0.2 µm	50/pkg, 200/cs
97027-956	AP-4794	GxF/0.2 µm	1000/pkg
16003-728	AP-4309	GxF/0.45 µm, AutoPack tubes	25/pkg, 200/cs
16003-730	AP-4310	GxF/0.45 µm	50/pkg, 200/cs
16003-726	AP-4308	GxF/0.45 µm	1000/pkg

IC Acrodisc PSF Syringe Filters with Supor Membrane, 25 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-890	AP-4585	0.45 µm	50/pkg, 200/cs
28143-894	AP-4785	0.45 µm	1000/pkg

Acrodisc PSF Syringe Filters with Versapor Membrane, 25 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-380	AP-4189	0.8 µm	50/pkg, 200/cs
28143-394	AP-4568	0.8 µm	1000/pkg
16003-732	AP-4000	10 µm, AutoPack tubes	25/pkg, 200/cs
16003-734	AP-4001	10 µm	50/pkg, 200/cs
16003-736	AP-4002	10 µm	1000/pkg

Acrodisc PSF Syringe Filters with Supor Membrane, 25 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
97027-952	AP-4798	GxF/0.2 µm, AutoPack Tubes	25/pkg, 200/cs
97027-954	AP-4799	GxF/0.2 µm	50/pkg, 200/cs
28143-372	AP-4425	GxF/0.45 µm	50/pkg, 200/cs
28143-374	AP-4426	GxF/0.45 µm	1000/pkg

Acrodisc Syringe Filters Ensure Complete Sample Filtration With Minimal Hold-Up Volumes

Analytical sample preparation syringe filters are HPLC certified by Pall Laboratory for low levels of UV-absorbing extractables.

Traditional Acrodisc syringe filters are available in a wide range of membrane types, sizes, and packaging configurations to fit all applications. Acrodisc syringe filters have color-coded printing indicating membrane type and pore size on each filter.

Membrane Color Code

- wwPTFE
- PTFE
- PVDF
- Nylon
- Glass Fiber
- PES

Relative Throughput (EFA)	Filter Formats	wwPTFE (water wettable PTFE)	PTFE (Hydrophobic)	Nylon (Hydrophilic)	PVDF (Hydrophilic)	Versapor (Acrylic Copolymer, Hydrophilic)	Glass Fiber (Hydrophilic)	Supor (Polyethersulfone, Hydrophilic)
	Acrodisc PSF Syringe Filters							
< 150 mL (3.9 cm²)	**25 mm Acrodisc PSF Syringe Filter**: designed and automation certified to address the specific requirements of automated workstations.	●	●	●	●			●
< 150 mL (3.9 cm²)	**25 mm Acrodisc PSF GxF Syringe Filter**: multi-layered glass prefilter to maximize throughput and meet the requirements of automated workstations.	●	●	●	●		●	●
< 150 mL (3.9 cm²)	**25 mm Acrodisc PSF IC Syringe Filter**: optimized to provide consistent results when analyzing ionic species.							●
	Acrodisc Syringe Filters							
< 10 mL (1.0 cm²)	**13 mm Acrodisc Syringe Filter**: multiple filter selection for both aqueous and solvent-based sample filtration.	●	●	●	●	●		●
< 10 mL (1.0 cm²)	**13 mm Acrodisc Syringe Filter with Minispike**: minispike configuration offers lower hold-up volume and easy filtration into autosampler vials.	●	●	●	●			
< 10 mL (1.0 cm²)	**13 mm IC Acrodisc Syringe Filter**: convenient size for small sample volumes of ionic solutions.							●
< 100 mL (2.8 cm²)	**25 mm Acrodisc Syringe Filter**: multiple membrane selections for compatibility with aqueous and organic solvents.	●	●	●	●		●	●
< 100 mL (EFA varies by device size)	**Non-Sterile Acrodisc Syringe Filter (modified acrylic housings):** for general aqueous samples, prefiltration, and clarification. Not HPLC certified.					●		●
< 200 mL (7.5 cm²)	**37 mm GF Acrodisc Syringe Filter**: additional filtration area for very dirty samples. Not HPLC certified.						●	

Note: *All HPLC- and IC-certified by Pall Laboratory Acrodisc syringe filters are made with polypropylene housings and male luer outlets; the 13 mm is also available with minispike outlets.*

High Performance UHPLC Sample Prep Filtration Provides Increased Column Life and the Best Chromatography

UHPLC requires stringent sample preparation to improve chromatography and extend column life. The smaller column packing sizes in UHPLC columns require smaller pore sized sample preparation filters. These 0.2 µm syringe filters and membranes have been developed for UHPLC sample preparation and mobile phase filtration. The 0.2 µm pore size assures removal of the contaminant size most likely to plug a UHPLC column and offers better protection of your analytical results.

As with other pore size Acrodisc syringe filters, these UHPLC filter membranes (wwPTFE, nylon, PVDF, and PTFE) are HPLC certified by Pall Laboratory for low levels of UV absorbing extractables.

Acrodisc PSF syringe filters are available with a GxF multi-layer prefilter which provides two to four times the throughput of standard glass fiber prefilter devices, allowing quick and easy filtration of your most difficult to filter solutions. Pall's 13 mm Acrodisc syringe filter can also be purchased with a 13 mm minispike outlet for lower hold-up volume and easier filtration into autosampler vials without airlock.

Applications

- Sample preparation for UHPLC
- Sample preparation for microbore columns
- For use when concerned with microbial growth

Ordering Information

Acrodisc Syringe Filters with wwPTFE Membrane, 13 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
76308-728	2400	0.2 µm, minispike outlet	300/pkg
76308-698	2401	0.2 µm, minispike outlet	1000/pkg
76308-700	2402	0.45 µm, minispike outlet	300/pkg
76308-702	2403	0.45 µm, minispike outlet	1000/pkg

Acrodisc Syringe Filters with wwPTFE Membrane, 25 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
76308-634	4927	0.2 µm	200/cs
76308-636	4929	0.2 µm	1000/pkg
76308-638	4914	0.45 µm	200/cs
76308-640	4932	0.45 µm	1000/pkg

Acrodisc Syringe Filters with PTFE Membrane, 13 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-254	4552	0.2 µm, minispike outlet	100/pkg, 300/cs
28143-256	4553	0.45 µm, minispike outlet	100/pkg, 300/cs
28143-556	4555	0.45 µm, minispike outlet	1000/pkg
28143-982	4423	0.2 µm, male slip luer outlet	100/pkg, 300/cs
28143-930	4542	0.2 µm, male slip luer outlet	1000/pkg
28143-981	4422	0.45 µm, male slip luer outlet	100/pkg, 300/cs
28143-931	4543	0.45 µm, male slip luer outlet	1000/pkg

Acrodisc Syringe Filters with PTFE Membrane, 25 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-926	4225	0.2 µm	50/pkg, 200/cs
28144-593	4521	0.2 µm	1000/pkg
28143-924	4219	0.45 µm	50/pkg, 200/cs
28144-584	4501	0.45 µm	1000/pkg
28143-928	4226	1 µm	50/pkg, 200/cs
28100-062	4503	1 µm	1000/pkg

Acrodisc Syringe Filters with Nylon Membrane, 13 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-250	4550	0.2 µm, minispike outlet	100/pkg, 300/cs
N/A	4561	0.2 µm, minispike outlet	1000/pkg
28143-252	4551	0.45 µm, minispike outlet	100/pkg, 300/cs
34181-048	4546	0.45 µm, minispike outlet	1000/pkg
28143-985	4427	0.2 µm, male slip luer outlet	100/pkg, 300/cs
28143-242	4540	0.2 µm, male slip luer outlet	1000/pkg
28143-984	4426	0.45 µm, male slip luer outlet	100/pkg, 300/cs
28143-240	4541	0.45 µm, male slip luer outlet	1000/pkg

Acrodisc Syringe Filters with Nylon Membrane, 25 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-946	4436	0.2 µm	50/pkg, 200/cs
28144-592	4522	0.2 µm	1000/pkg
28143-948	4438	0.45 µm	50/pkg, 200/cs
28144-588	4502	0.45 µm	1000/pkg
28143-286	4549	GF/0.45 µm	50/pkg, 200/cs
28139-304	4528	GF/0.45 µm	1000/pkg

Acrodisc Syringe Filters with Glass Fiber, 25 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-986	4523	1 µm (nominal)	50/pkg, 200/cs
34181-092	4529	1 µm (nominal)	1000/pkg

Acrodisc Syringe Filter with Glass Fiber, 37 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-987	4524	1 µm (nominal), polypropylene housing	15/pkg, 60/cs

Acrodisc Syringe Filters with PVDF Membrane, 13 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-989	4450	0.2 µm, minispike outlet	100/pkg, 300/cs
28143-942	4544	0.2 µm, minispike outlet	1000/pkg
28143-991	4452	0.45 µm, minispike outlet	100/pkg, 300/cs
28143-938	4545	0.45 µm, minispike outlet	1000/pkg
28143-994	4455	0.2 µm, male slip luer outlet	100/pkg, 300/cs
28143-997	4457	0.45 µm, male slip luer outlet	100/pkg, 300/cs

Acrodisc Syringe Filters with PVDF Membrane, 25 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-936	4406	0.2 µm	50/pkg, 200/cs
28143-280	4520	0.2 µm	1000/pkg
28143-940	4408	0.45 µm	50/pkg, 200/cs
28143-583	4500	0.45 µm	1000/pkg

Ion Chromatography Acrodisc Syringe Filters, 13 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28144-030	4483	0.2 µm	100/pkg, 300/cs
34181-034	4683	0.2 µm	1000/pkg
28144-032	4485	0.45 µm	100/pkg,300/cs
34181-032	4685	0.45 µm	1000/pkg

Ion Chromatography (PES) Acrodisc Syringe Filters, 25 mm

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-290	4583	0.2 µm	50/pkg, 200/cs
34181-074	4783	0.2 µm	1000/pkg
28143-292	4585	0.45 µm	50/pkg, 200/cs
34181-052	4785	0.45 µm	1000/pkg

Acrodisc Syringe Filters with Versapor Membrane, Non-Sterile

VWR Cat. No.	Pall Part No.	Description	Pkg
28143-998	4459	0.8 µm, 13 mm, polypropylene housing	300/cs
28143-960	4488	1.2 µm, 25 mm, modified acrylic housing	75/pkg, 300/cs
28143-963	4489	5 µm, 25 mm, modified acrylic housing	75/pkg, 300/cs

Acrodisc Syringe Filters with Supor Membrane, Non-Sterile

VWR Cat. No.	Pall Part No.	Description	Pkg
34181-088	4655	0.2 µm, 32 mm, modified acrylic housing	1000/pkg
28139-710	4659	0.8/0.2 µm, 32 mm, modified acrylic housing	1000/pkg
34181-086	4653	0.45 µm, 32 mm, modified acrylic housing	1000/pkg
28143-046	4661	1.2/0.45 µm, 32 mm, modified acrylic housing	1000/pkg
28143-044	4660	1.2 µm, 32 mm, modified acrylic housing	1000/pkg
97035-178	4662	5 µm, 32 mm, modified acrylic housing	1000/pkg

Nanosep Centrifugal Devices are Ideal When Sample Recovery is a Concern

wwPTFE Nanosep MF centrifugal devices are perfect for particulate removal prior to analytical sample analysis. The high g-force rating allows spinning at 14,000 x g, assuring rapid sample processing.

Special Features

Rapid Processing of Samples

Centrifugal devices are simple to use and save on sample preparation time. Spin multiple samples at once.

Universal Membrane Filter

The wwPTFE, water wettable polytetrafluroethylene membrane is ideal for aqueous solutions and offers maximum chemical compatibility for aggressive solvents.

High Recovery

wwPTFE membrane is a low protein binding membrane. It removes unwanted particulate from samples with high recovery of critical proteins.

Low Extractables

Our HPLC-grade centrifugal devices are certified to be low in UV extractables.

Leak-Free Operation

Unique sealing technology assures leak-free operation without the use of o-rings or adhesives that can add contaminants.

Applications

- Sample preparation – 0.2 µm and 0.45 µm pore sizes to remove particulates from small volumes prior to UPLC and HPLC analysis
- Removal of precipitates, including metals, polymers, and crystals
- Removal of cells from media prior to analysis
- Applications requiring maximum filtrate (or retentate) recovery from limited sample volumes

Ordering Information

wwPTFE Nanosep Centrifugal Devices

VWR Cat. No.	Pall Part No.	Description	Pkg
76308-654	ODPTFE02C34	0.2 µm	100/pkg
76308-656	ODPTFE02C35	0.2 µm	500/pkg
76308-658	ODPTFE04C34	0.45 µm	100/pkg
76308-660	ODPTFE04C35	0.45 µm	500/pkg

Simplify Clean-Up and Degassing of Mobile Phase Solvents With a SolVac® Filter Holder

Special Features

Versatile Design Fits Most HPLC Bottles, Flasks, and Containers
Eliminates the additional step of transferring mobile phase solvent from flask to reservoir, which can cause contamination.

Draws Directly From HPLC Solvent Bottles
Less likely to spill aggressive solvents than glass funnels or disposable cups.

Durable Plastic Construction
Resists breaking, unlike glass funnels, assemblies, or pick-up adapters.

Leak-Proof Patented Magnetic Seal
Eliminates membrane shifting or tearing which can occur with aluminum clamps or threaded holders.

How to Use

1. *Place base on the receiving vessel with gasket seal seated on the rim of the vessel. Then place the membrane on the clean, dry filter support.*
   While holding the filter housing assembly on the receiving vessel, attach vacuum tubing from the vacuum source to the vacuum port adapter located on the side of the housing base.
2. *Attach the inlet feed-line tubing to the tapered inlet on the upper housing base.*
3. *Place vacuum feed-line into solvent to be filtered. Be sure sinker is located well below the surface of the solvent, preferably on the bottom of the vessel. Place thumb clamp just above the solvent, preferably on the bottom of the vessel. Place thumb clamp just above the solvent bottle and close it.*
4. *Apply vacuum while holding the SolVac filter housing, applying even pressure to both sides of the receiving vessel until full vacuum is drawn. When the required vacuum is achieved and the system is "charged", open the thumb clamp to start the filtration. Filter until all of the solvent is drawn through or the receiving vessel is full.*

Ordering Information

SolVac Filter Holder for Mobile Phase

VWR Cat. No.	Pall Part No.	Description	Pkg
28145-283	4020	SolVac holder with 61 cm (2 ft.) feedline tubing, thumb clamp, sinker, vacuum port adapter, 2 membrane seal gaskets, and 2 seal gaskets	1/pkg
28145-285	4022	122 cm (4 ft.) replacement feedline tubing	1/pkg
28145-287	4023	Replacement seal gaskets	10/pkg
28145-289	4025	Membrane seal gasket kit	10/pkg
28145-291	4026	Sinker replacement kit	2/pkg
28145-293	4028	Clamp replacement kit	2/pkg

Mobile Phase Membranes

VWR Cat. No.	Pall Part No.	Description	Pkg
76308-704	60538	0.2 µm 25 mm wwPTFE disc	50/pkg
76308-706	60539	0.2 µm 47 mm wwPTFE disc	50/pkg
76308-708	60542	0.2 µm 50 mm wwPTFE disc	50/pkg
76308-710	60547	0.45 µm 25 mm wwPTFE disc	50/pkg
76308-712	60548	0.45 µm 47 mm wwPTFE disc	50/pkg
76308-714	60550	0.45 µm 50 mm wwPTFE disc	50/pkg
76308-716	60551	0.45 µm 90 mm wwPTFE disc	75/pkg
28150-021	66143	0.2 µm 47 mm TF (PTFE)	100/pkg
28149-962	66149	0.45 µm 47 mm TF (PTFE)	100/pkg
28140-040	66602	0.2 µm 47 mm Nylaflo™ (Nylon)	100/pkg
28140-141	66608	0.45 µm 47 mm Nylaflo (Nylon)	100/pkg

**Always use a safety-coated receiving vessel that is less than 4 L and rated for vacuum applications. Failure to do so may result in implosion of the receiving vessel and potential injury to the user.*

47 mm Glass Filter Funnels for Vacuum Filtration of Liquids and Degassing of HPLC Solvents and Mobile Phases

Special Features

Resistant to Aggressive Solvents
Funnel is made of 100% borosilicate glass, assuring resistance to even the most aggressive solvents.

Filter an Entire Liter at Once
One-liter 47 mm glass funnel/support assembly permits filtration of an entire liter at once.

Unique Design
Support assembly's unique base design with integral vacuum connection prevents contamination of the vacuum line with filtrate.

Easy to Read
One-liter glass funnel is graduated from 300 to 1000 mL in 50 mL increments. 300 mL glass funnel is graduated from 100 to 250 mL in 25 mL increments. Stepped stem fits into standard one-hole stoppers (9 mm).

Mobile Phase Membranes

Pall membrane disc filters provide purification and degassing of mobile phase solvents used in liquid chromatography applications. The membranes are identical in composition and quality to those used in our HPLC-certified Acrodisc syringe filters.

HPLC Mobile Phase Filtration Membranes

Membrane	Mobile Phase Application
TF (PTFE)	Recommended for use with all lower surface tension liquids
wwPTFE (water wettable polytetra-fluoroethylene)	Recommended for use with organics and aqueous liquids
Nylaflo (Nylon)	Not recommended for use with certain acidic solutions
Supor (PES)	Not recommended for use with certain ketones

Ordering Information

47 mm Glass Filter Funnels

VWR Cat. No.	Pall Part No.	Description	Pkg
28144-608	4011	Glass filter funnel with No. 8 support stopper base (300 mL funnel, no flask)	1/pkg
28144-620	4012	Glass filter funnel with sidearm support assembly and flask (1 L funnel with 4 L flask)	1/pkg
28144-624	4013	Glass filter funnel with sidearm support assembly and flask (300 mL funnel with 1 L flask)	1/pkg

Replacement Parts
47 mm Glass Filter Funnel (for PN 4011)

VWR Cat. No.	Pall Part No.	Description	Pkg
28144-622	4014	Upper glass funnel, 300 mL	1/pkg
28150-416	4019	Fritted glass support base/No. 8 silicone stopper	1/pkg

47 mm Glass Funnel/Support Assembly (for PN 4012, 4013)

VWR Cat. No.	Pall Part No.	Description	Pkg
28150-410	4015	Glass funnel, 1 L	1/pkg
28150-412	4016	Glass flask, 4 L	1/pkg
28150-414	4017	Fritted glass support base with sidearm	1/pkg

Chemical Compatibility Guide

Solvent	wwPTFE	PTFE	Glass	Versapor	Nylon	IC, Supor (PES)	PVDF
Acetone	R	R	R	NR	R	NR	NR
Acetonitrile	R	R	R	NR	R	R	R
Acetic Acid, glacial	R	R	R	NR	NR	R	R
n-Butanol	R	R	R	R	R	R	R
Chloroform	R	R	R	NR	R	NR	NR
Dimethyl Formamide	R	R	R	NR	R	NR	NR
Dimethyl Sulfoxide	R	R	R	NR	R	NR	R
Ethanol	R	R	R	R	R	R	R
Ethyl Acetate	R	R	R	R	R	NR	R
Ethel Ether	R	R	R	R	R	R	R
Hydrochloric Acid (1N)	R	R	R	•	NR	R	R
Hexane, dry	R	R	R	R	R	LR	R
Methanol	R	R	R	R	R	R	R
Methylene Chloride	R	R	R	NR	R	NR	R
Methyl Ethyl Ketone	R	R	R	NR	R	NR	NR
N-Methyl Pyrrolidone	R	R	R	•	NR	NR	R
Isopropanol	R	R	R	R	R	R	R
Sodium Hydroxide (3N)	R	R	R	R	R	R	NR
Tetrahydrofuran	R	R	R	NR	R	NR	NR
Tetrahydrofuran/water (50/50)	R	R	R	•	R	•	R
Toluene	R	R	R	R	R	R	R
Water	R	R	R	R	R	R	•
Ammonium Hydroxide	R	R	R	•	•	•	•

R = RESISTANT. No significant change was observed in flow rate or bubble point of the membrane.
LR = LIMITED RESISTANCE. Moderate changes in physical properties or dimension of the membrane were observed. The filter may be suitable for short term, non-critical use at room temperature.
NR = NOT RESISTANT. The membrane is basically unstable. In most cases, extensive shrinkage or swelling occurs. The filter may gradually weaken or partially dissolve after extended exposure.
• = Insufficient data. Trial testing is recommended.
Test Methods: The data presented in this chart is a compilation of testing by Pall Corporation with certain chemicals, manufacturer's data, or compatibility recommendations from the Compass Corrosion Guide, by Kenneth M. Pruett. This data is intended to provide expected results when filtration devices are exposed to chemicals under static conditions for 48 hours at 25 °C (77 °F), unless otherwise noted. This chart is intended only as a guide. Accuracy cannot be guaranteed. Users should verify chemical compatibility with a specific filter under actual use conditions. Chemical compatibility with a specific filter, under actual use conditions, is affected by many variables including temperature, pressure, concentration, and purity. Various chemical combinations prevent complete accuracy.

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