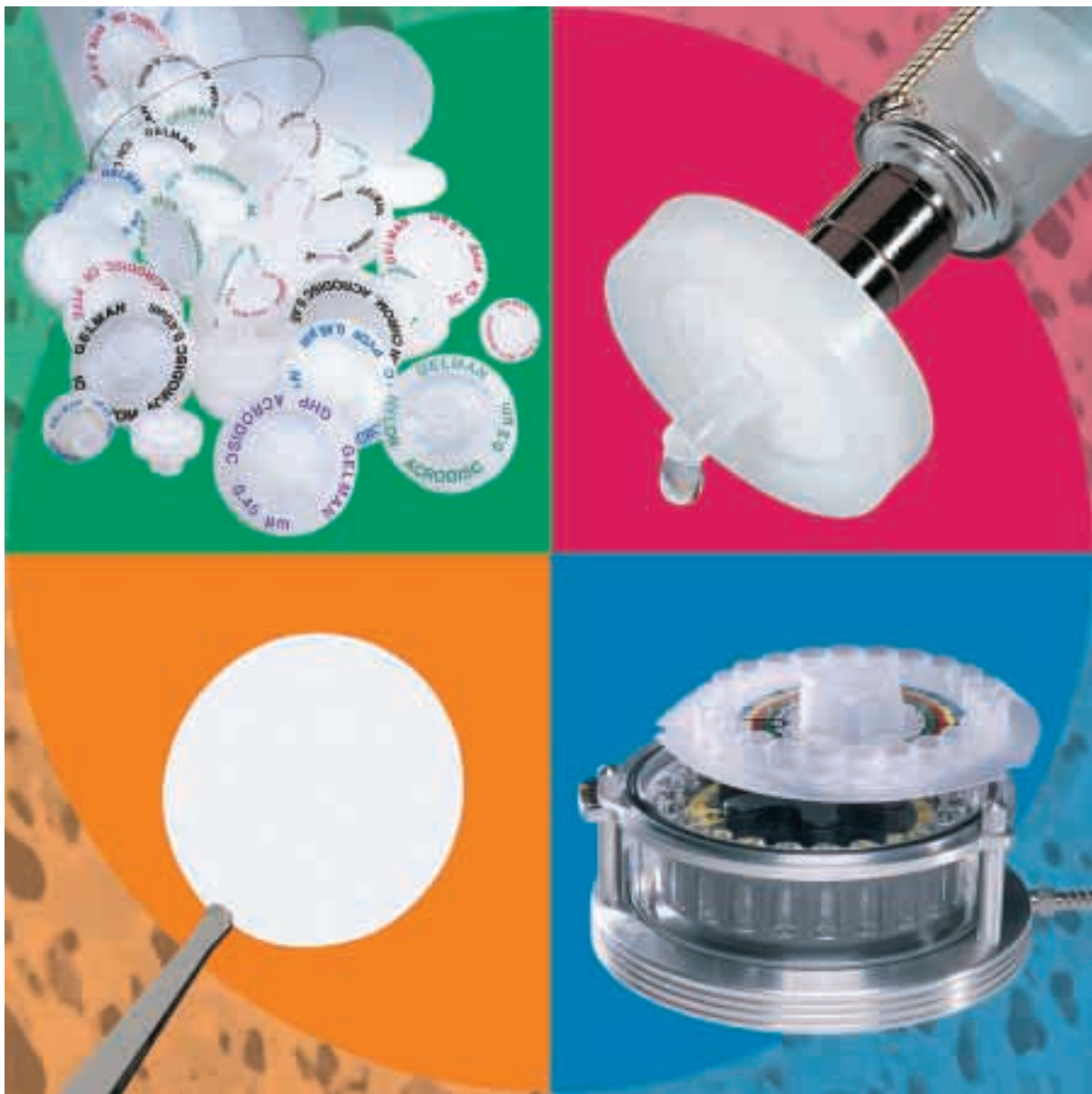


# Waters

## Analytical Chemistry Products

for sample preparation and mobile phase filtration



Manufactured by **PALL** Gelman Laboratory

# Choosing the right filter

## Consider pore size

*Are you concerned about efficient and accurate retention of particulate?*

Pall Gelman Laboratory is aware of the importance of protecting your valuable time and equipment, so we rate our syringe filter pore sizes accurately to specified ratings. For standard liquid chromatography systems using columns with 3 µm or larger packings, the filtration industry standard is 0.45 µm for syringe filters and mobile phase membranes. For columns with 3 µm or smaller packings, 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 - 5 µm or glass fiber filters are suggested. Prefilters generally precede smaller-pore-size final filters and allow the user to process the larger fluid volumes before the filter plugs.

## Consider sample characteristics

*Are your solutions aqueous or organic?*

### Aqueous Samples

Hydrophilic membranes, which have an affinity for water, are preferable when filtering aqueous samples. Use Pall Gelman Laboratory's GHP, Nylon, PVDF, or PES Acrodisc syringe filters.

### Gases and Aggressive Organic Solvents



Hydrophobic membranes repel water and are inert to aggressive organic solvents, making them ideal for gases and organic solvents. Choose Pall Gelman Laboratory's Acrodisc CR with PTFE membrane.

### Proteinaceous Samples

Choose a low protein-binding filter, such as the GHP Acrodisc with GH Polypro membrane or the Acrodisc LC with PVDF membrane.

### Ion Chromatography

For ion chromatography applications, only the IC Acrodisc (PES) is certified for low levels of inorganic extractables.

	Universal Solvent Compatibility		Organic Solvents		
TYPE OF MEMBRANE	GHP (Hydrophilic PP)		PTFE		
All filters have female luer lock inlet connections.					
	GHP Acrodisc		Acrodisc CR		
SAMPLE VOLUME	< 10 mL	< 100 mL	< 2 mL	< 10 mL	< 100 mL
DIAMETER	13 mm	25 mm	4 mm	13 mm	25 mm
MAXIMUM PRESSURE RATING	6.9 bar (100 psi)	6.9 bar (100 psi)	5.2 bar (75 psi)	6.9 bar (100 psi)	6.9 bar (100 psi)
OUTLET CONNECTION	Minispike	Male Luer	Male Luer	Minispike/Male Luer	Male Luer
TYPICAL HOLD-UP VOLUME (with air purge)	< 14 µL	< 100 µL	< 10 µL	< 14 µL / < 30 µL	< 100 µL
PORE SIZE & PART NO.	<b>Minispike</b> 0.2 µm 0.45 µm	<b>Male Luer</b> 0.2 µm 0.45 µm	<b>Male Luer</b> 0.45 µm	<b>Minispike</b> 0.2 µm 0.45 µm <b>Male Luer</b> 0.2 µm 0.45 µm	<b>Male Luer</b> 0.2 µm 0.45 µm 1 µm
PACKAGING***	100/pkg 300/case	50/pkg 200/case	250/pkg 750/case	100/pkg 300/case	50/pkg 200/case

\* Not HPLC certified

\*\* Acrylic Housing

\*\*\* Refer to our most recent catalog or your local Sales Representative for additional packaging configurations.

# Multiple Sample Filtration System

The Alliance™ Filtration System prepares 24 samples simultaneously



## Save Time

Accelerate sample preparation by simultaneously filtering up to 24 samples, saving both time and labor.

## Easy to Use

No need to use cumbersome, individually wrapped disposable syringes. Use disposable pipette tips which are less costly, easier to use, and require less bench space.

## Improve Productivity

Save 20 minutes of labor per carousel over the conventional syringe filter technique.

## Affordable

The material and labor costs are comparable in cost to the conventional syringe filter technique.

## Save Space

Compact filtration system that requires much less bench space than the conventional syringe filter technique.

## HPLC Certification

Pall Gelman Laboratory HPLC certification ensures that analytical results will not be compromised by extractable filter materials.

## No Cross Contamination

Each 1.9 mL well is individually sealed, ensuring your sample will accurately dispense into the Waters Alliance sample carousel with no cross contamination or splashing.

**NEW**

## AcroPrep™ Filter Plate

The Alliance™ Filtration System dramatically changes the way sample filtration is performed on the Alliance HPLC systems by allowing simultaneous filtration of up to 24 samples in only seconds. The Alliance Filtration System is comprised of a manifold which houses the Alliance sample carousel and a Pall Gelman Laboratory AcroPrep filter plate containing 24 filters. AcroPrep filter plates are available in 0.45 µm membranes, including GHP, PTFE, Nylon, and PVDF.

### Ordering Information

Product No.	Description	Packaging
289000159	Alliance filtration manifold	1/pkg
186000154	AcroPrep GHP filter plate	10/pkg
186000155	AcroPrep Nylon filter plate	10/pkg
186000156	AcroPrep PTFE filter plate	10/pkg
186000157	AcroPrep PVDF filter plate	10/pkg

# for your application

## Consider sample volume

*What size device will assure complete sample filtration with minimal hold-up volumes?*

Pall Gelman Laboratory offers a broad range of device sizes. The minispike outlet, available on the 13 mm device, allows for minimal sample hold-up and easy dispensing into autosampler vials.

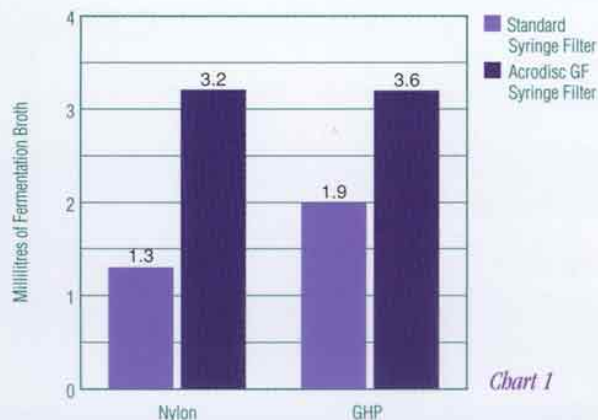


Filter Size	4 mm	13 mm	13 mm	25 mm
Housing	PP	PP	PP	PP
Outlet	Male Luer	Minispike	Male Luer	Male Luer
Sample Volume	< 2 mL	< 10 mL	< 10 mL	< 100 mL
Typical Hold-up Volume (with air purge)	< 10 µL	< 14 µL	< 30 µL	< 100 µL

## Consider prefiltration

*Are your samples particulate-laden or viscous, making them difficult to filter?*

For difficult-to-filter samples, it is best to use a syringe filter with a glass fiber prefilter over the membrane. The 25 mm GHP and Nylon Acrodisc syringe filters are available with a glass fiber prefilter.



## Aqueous/Organic Samples

Supor® (Polyethersulfone)



### Ion Chromatography Acrodisc\*

< 10 mL      < 100 mL

13 mm      25 mm

5.2 bar (75 psi)      5.2 bar (75 psi)

Male Luer      Male Luer

< 30 µL      < 100 µL

Male Luer  
0.2 µm  
0.45 µm

Male Luer  
0.2 µm  
0.45 µm

100/pkg  
300/case

50/pkg  
200/case

## Aqueous/Organic Solvents

Nylon



### Nylon Acrodisc

< 2 mL      < 10 mL      < 100 mL

4 mm      13 mm      25 mm

5.2 bar (75 psi)      6.9 bar (100 psi)      6.2 bar (90 psi)

Male Luer      Minispike/Male Luer      Male Luer

< 10 µL      < 14 µL / ≤ 30 µL      < 100 µL

Male Luer  
0.45 µm

Minispike  
0.2 µm  
0.45 µm

Male Luer  
0.2 µm  
0.45 µm

Male Luer  
0.2 µm  
0.45 µm

250/pkg  
750/case

100/pkg  
300/case

50/pkg  
200/case

## Consider chemical compatibility

*Does the filter need to be resistant to bases, acids, or organic solvents?*

Chemical compatibility is a major consideration when selecting the right syringe filter or mobile phase membrane disc filter for your application. The GHP Acrodisc syringe filter is the most versatile in terms of broad chemical compatibility, however each Acrodisc syringe filter has its own unique benefits in terms of resistance to particular chemicals.







Refer to the chemical compatibility chart on the back cover to determine which filter is best for your application.

## Consider easy identification

All Acrodisc syringe filters and their packaging have color-coded membrane type and pore size printed on each filter. Ideal for ISO-labs.

 GH Polypro	 Nylon
 PTFE	 Glass Fiber
 PVDF	 PES

*Chart 1 shows the resulting increase in throughput realized (volume filtered) when a membrane syringe filter with glass fiber prefilter is used versus a standard membrane syringe filter. The Acrodisc GF syringe filter increases the amount of solution filtered by 45 - 100%.*

		Prefiltration & Difficult-to-Filter Samples			
PVDF		Glass Fiber		GHP with Glass Fiber	Nylon with Glass Fiber
					
<b>Acrodisc LC</b>	<b>Acrodisc LC</b>	<b>GF Acrodisc</b>	<b>GF Acrodisc</b>	<b>GHP Acrodisc GF</b>	<b>Nylon Acrodisc GF</b>
< 10 mL	< 100 mL	< 100 mL	< 200 mL	< 100 mL	< 100 mL
13 mm	25 mm	25 mm	37 mm	25 mm	25 mm
3.4 bar (50 psi)	3.4 bar (50 psi)	5.2 bar (75 psi)	5.2 bar (75 psi)	6.2 bar (90 psi)	6.2 bar (90 psi)
Minispike/Male Luer	Male Luer	Male Luer	Male Luer	Male Luer	Male Luer
< 14 µL / ≤ 30 µL	< 100 µL	< 100 µL	< 0.5 mL	< 125 µL	< 125 µL
<b>Minispike</b> 0.2 µm 0.45 µm	<b>Male Luer</b> 0.2 µm 0.45 µm	<b>Male Luer</b> 1 µm	<b>Male Luer</b> 1 µm	<b>Male Luer</b> 0.45 µm	<b>Male Luer</b> 0.45 µm
<b>Male Luer</b> 0.2 µm 0.45 µm					
100/pkg 300/case	50/pkg 200/case	50/pkg 200/case	15/pkg 60/case	50/pkg 200/case	50/pkg 200/case

# Versatile Syringe Filters

GH Polypro (GHP) is an all-purpose membrane for harsh aqueous and aggressive organic solvent-based solutions

## GHP Acrodisc Syringe Filters

Avoid the expense and inconvenience of keeping a variety of filters in stock. The GHP Acrodisc is the "universal" syringe filter for all of your analytical filtration requirements. The GHP Acrodisc syringe filter provides broad chemical compatibility, low protein binding, low back pressure, and low levels of UV-absorbing extractables. GHP offers the fastest flow rates of any Pall Gelman Laboratory HPLC syringe filter.

### GH Polypro Membrane Offers Universal Chemical Compatibility

	Proteinaceous	General Aqueous	Non-aggressive Organic	Aggressive Organic
GHP	++	++	++	++
PTFE	-	-	++	++
PVDF	++	++	+	-
Nylon	+*	++	+	-
IC (Supor)	+	++	+	-

++ Recommended + Suitable - Not Recommended

\*Dependent on protein type and concentration

Now available in 0.2 µm!



Chart 2

### Ordering Information

Description	Diameter	Pore Size	Qty/P.N.	Qty/P.N.	Qty/P.N.
GHP Acrodisc	25 mm	0.45 µm	50/WAT200514	200/WAT200515	1000/WAT200829
GHP Acrodisc Minispike	13 mm	0.45 µm	100/WAT200516	300/WAT200517	1000/WAT200830
GHP Acrodisc	25 mm	0.2 µm	50/WAT097964	200/WAT097965	N/A
GHP Acrodisc Minispike	13 mm	0.2 µm	100/WAT097962	300/WAT097963	N/A

Manufactured by **PALL** Gelman Laboratory

# Mobile Phase

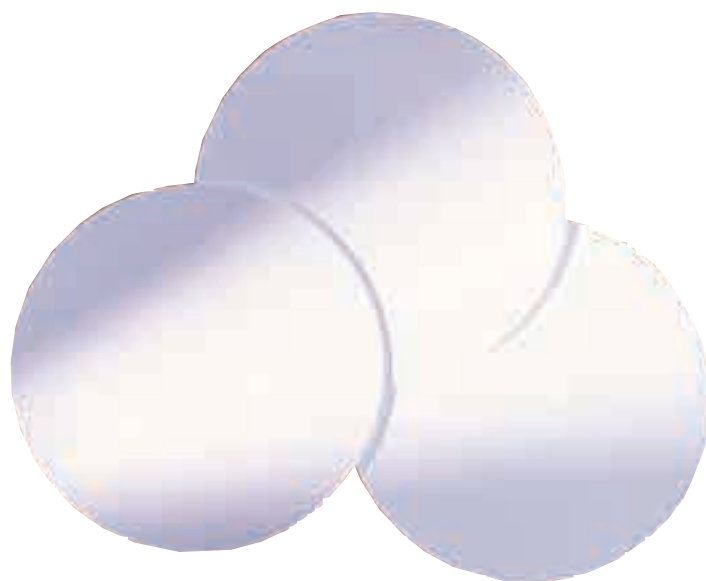
## Accessories

### Solvent Filtration Apparatus

The 300 mL capacity 47 mm Glass Filter Funnel and 1 liter capacity 47 mm Glass Funnel/Support Assembly are ideal for vacuum filtration of liquids and degassing of HPLC solvent and mobile phases. Made of 100% borosilicate glass, assures resistance to even the most aggressive solvents.

#### Ordering Information

Product No.	Description	Packaging
WAT200543	All Glass Filter Holder 47 mm, complete	1/pkg
WAT200544	Forceps, SS	1/pkg
WAT200545	Funnel, 300 mL	1/pkg
WAT200546	Glass Base, tabulated cap	1/pkg
WAT200547	Ground Joint Flask	1/pkg
WAT200566	Swinney Holder	1/pkg



### Mobile Phase Membranes

Pall Gelman Laboratory offers membrane disc filters for the 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.

#### Ordering Information

Product No.	Description	Packaging
WAT200537	0.45 $\mu$ m, 47 mm GH Polypro (PP)	100/pkg
WAT200535	0.2 $\mu$ m, 47 mm TF (PTFE)	100/pkg
WAT200536	0.45 $\mu$ m, 13 mm TF (PTFE)	100/pkg
WAT200534	0.45 $\mu$ m, 47 mm TF (PTFE)	100/pkg
WAT200531	0.2 $\mu$ m, 47 mm FP Vericel™ (PVDF)	100/pkg
WAT200530	0.45 $\mu$ m, 47 mm FP Vericel (PVDF)	100/pkg
WAT200533	0.2 $\mu$ m, 47 mm Nylaflo (Nylon)	100/pkg
WAT200532	0.45 $\mu$ m, 47 mm Nylaflo (Nylon)	100/pkg
WAT200539	0.2 $\mu$ m, 47 mm Supor (PES)	100/pkg
WAT200540	0.45 $\mu$ m, 13 mm Supor (PES)	100/pkg
WAT200538	0.45 $\mu$ m, 47 mm Supor (PES)	100/pkg
WAT200541	1.0 $\mu$ m, 10 mm Thick Glass	100/pkg
WAT200542	1.0 $\mu$ m, 10 mm A/E Glass	100/pkg

# Broad Line of Syringe Filters

Ordering information for Acrodisc® syringe filters with PTFE, Nylon, PVDF, Glass Fiber, and PES membranes

## Ordering Information – PTFE

Description	Diameter	Pore Size	Qty/P.N.	Qty/P.N.	Qty/P.N.
Acrodisc CR (PTFE)	25 mm	0.45 µm	50/WAT200500	200/WAT200501	1000/WAT200820
Acrodisc CR (PTFE)	13 mm	0.45 µm	100/WAT200502	300/WAT200503	1000/WAT200821
Acrodisc CR (PTFE)	25 mm	0.2 µm	50/WAT200504	200/WAT200505	1000/WAT200822
Acrodisc CR (PTFE)	13 mm	0.2 µm	100/WAT200506	300/WAT200507	1000/WAT200823
Acrodisc CR (PTFE)	4 mm	0.45 µm	250/WAT200508	750/WAT200509	N/A
Acrodisc CR (PTFE) Minispike	13 mm	0.2 µm	100/WAT200556	300/WAT200557	1000/WAT200824
Acrodisc CR (PTFE) Minispike	13 mm	0.45 µm	100/WAT200558	300/WAT200559	1000/WAT200825

## Ordering Information – Nylon

Description	Diameter	Pore Size	Qty/P.N.	Qty/P.N.	Qty/P.N.
Nylon Acrodisc	25 mm	0.45 µm	50/WAT200518	200/WAT200519	1000/WAT200831
Nylon Acrodisc	13 mm	0.45 µm	100/WAT200520	300/WAT200521	1000/WAT200832
Nylon Acrodisc	25 mm	0.2 µm	50/WAT200522	200/WAT200523	1000/WAT200833
Nylon Acrodisc	13 mm	0.2 µm	100/WAT200524	300/WAT200525	1000/WAT200834
Nylon Acrodisc	4 mm	0.45 µm	250/WAT200526	750/WAT200527	N/A
Nylon Acrodisc minispike	13 mm	0.2 µm	100/WAT200562	300/WAT200563	1000/WAT200835
Nylon Acrodisc minispike	13 mm	0.45 µm	100/WAT200564	300/WAT200565	1000/WAT200836

## Ordering Information – PVDF

Description	Diameter	Pore Size	Qty/P.N.	Qty/P.N.	Qty/P.N.
Acrodisc LC (PVDF)	25 mm	0.45 µm	50/WAT200510	200/WAT200511	1000/WAT200826
Acrodisc LC (PVDF)	13 mm	0.45 µm	100/WAT200512	300/WAT200513	1000/WAT200827
Acrodisc LC (PVDF) Minispike	13 mm	0.45 µm	100/WAT200560	300/WAT200561	1000/WAT200828
Acrodisc LC (PVDF)	13 mm	0.2 µm	100/WAT200806	300/WAT200807	N/A
Acrodisc LC (PVDF)	25 mm	0.2 µm	50/WAT200808	200/WAT200809	1000/WAT200839
Acrodisc LC (PVDF) Minispike	13 mm	0.2 µm	100/WAT200804	300/WAT200805	1000/WAT200838

## Ordering Information – Glass Fiber Membrane

Description	Diameter	Pore Size	Qty/P.N.	Qty/P.N.	Qty/P.N.
Nylon Acrodisc GF	25 mm	0.45 µm	50/WAT200800	200/WAT200801	1000/WAT200837
Glass Fiber Acrodisc	25 mm	1.0 µm	50/WAT200818	200/WAT200819	1000/WAT200840
GHP Acrodisc GF	25 mm	0.45 µm	50/WAT200802	200/WAT200803	1000/WAT058853

## Ordering Information Polyethersulfone (PES)

Description	Diameter	Pore Size	Qty/P.N.	Qty/P.N.	Qty/P.N.
IC Acrodisc (PES)	13 mm	0.2 µm	100/WAT200810	300/WAT200811	1000/WAT200844
IC Acrodisc (PES)	13 mm	0.45 µm	100/WAT200812	300/WAT200813	1000/WAT200842
IC Acrodisc (PES)	25 mm	0.2 µm	50/WAT200814	200/WAT200815	1000/WAT200845
IC Acrodisc (PES)	25 mm	0.45 µm	50/WAT200816	200/WAT200817	1000/WAT200843
Supor Acrodisc (PES)	25 mm	0.45 µm	50/WAT200528	N/A	N/A
Supor Acrodisc (PES)	25 mm	0.2 µm	50/WAT200529	N/A	N/A

# Why Filter?

Filtration ensures the protection of your instruments and the integrity of your chromatographic results

## Protects Columns and Instrumentation

Filtration can prolong column life, minimize downtime, and improve the precision of your data, providing immediate protection to your valuable instrumentation.

Filtration eliminates:

- erratic pressure fluctuations due to particulate in the pump check valves
- noisy baselines caused by contamination
- damage to pump pistons and seals, injector valves, and plugged injection needles caused by particulate
- noise in the detector due to release of dissolved gases in the mobile phase

## Why use Pall Gelman Laboratory Acrodisc® Syringe Filters?

Pall Gelman Laboratory offers a wide range of Acrodisc syringe filters that provide quality and accuracy in analytical sample preparation. Acrodisc syringe filters provide assurance that your analytical samples are accurate the first time, every time.

## Exceptionally Low Levels of Extractables

A filter is designed to increase accuracy by removing unwanted particles. However, the wrong filter can be a source of contaminants called extractables which elute into the sample from the filter device. These undesired artifacts can jeopardize analytical results. Some extractable concerns include coelution, false

quantitation, and extraneous peaks. Pall Gelman Laboratory specifically selects the highest grade of materials and performs rigorous extraction methods on our membrane products to hinder the occurrence of undesired artifacts.

## HPLC Certified for Low Extractables

Pall Gelman Laboratory's HPLC certification ensures that analytical results will not be compromised by extractable filter materials. To verify low levels of UV-detectable extractables, statistically representative samples of the entire HPLC Acrodisc syringe filter line are randomly taken and tested for compatibility with common HPLC solvents using common HPLC conditions.

## IC Certified for Low Levels of Inorganic Extractables

Pall Gelman Laboratory certifies Ion Chromatography (IC) Acrodisc syringe

filters have been tested using a highly sensitive Ion Chromatography protocol to monitor inorganic extractables. Representative samples of each lot are tested. 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.

## Technical Support and Customer Service

Pall Gelman Laboratory offers unprecedented technical support and customer service worldwide. If you need help, contact your local sales office or our corporate headquarters at 800-521-1520 (in the USA) or 734-665-0651.

## Absolute Satisfaction Guarantee

If you are not satisfied for any reason with any Pall Gelman Laboratory product, we will replace it free of charge with products that perform to your satisfaction.

