



# Filtration for HPLC sample preparation

Efficient sample filtration for HPLC, helping labs save time.



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# Quality, consistency and safety

Cytiva is committed to quality. Our Whatman™ brand products are manufactured from high-purity raw materials, and our factories all operate to the latest version of ISO 9001 standards. Our filter selection recommendations are built on the combination of expertise in modern methods and almost 300 years of history in the paper and membrane filtration business.

Cytiva's Whatman™ filtration products bring efficient sample filtration for High-Performance Liquid Chromatography (HPLC), helping labs save time when processing numerous HPLC samples and reducing the number of filtration devices and associated costs and waste, while protecting valuable instruments to deliver consistent and accurate analytical testing results.



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# Importance of sample prep prior to HPLC

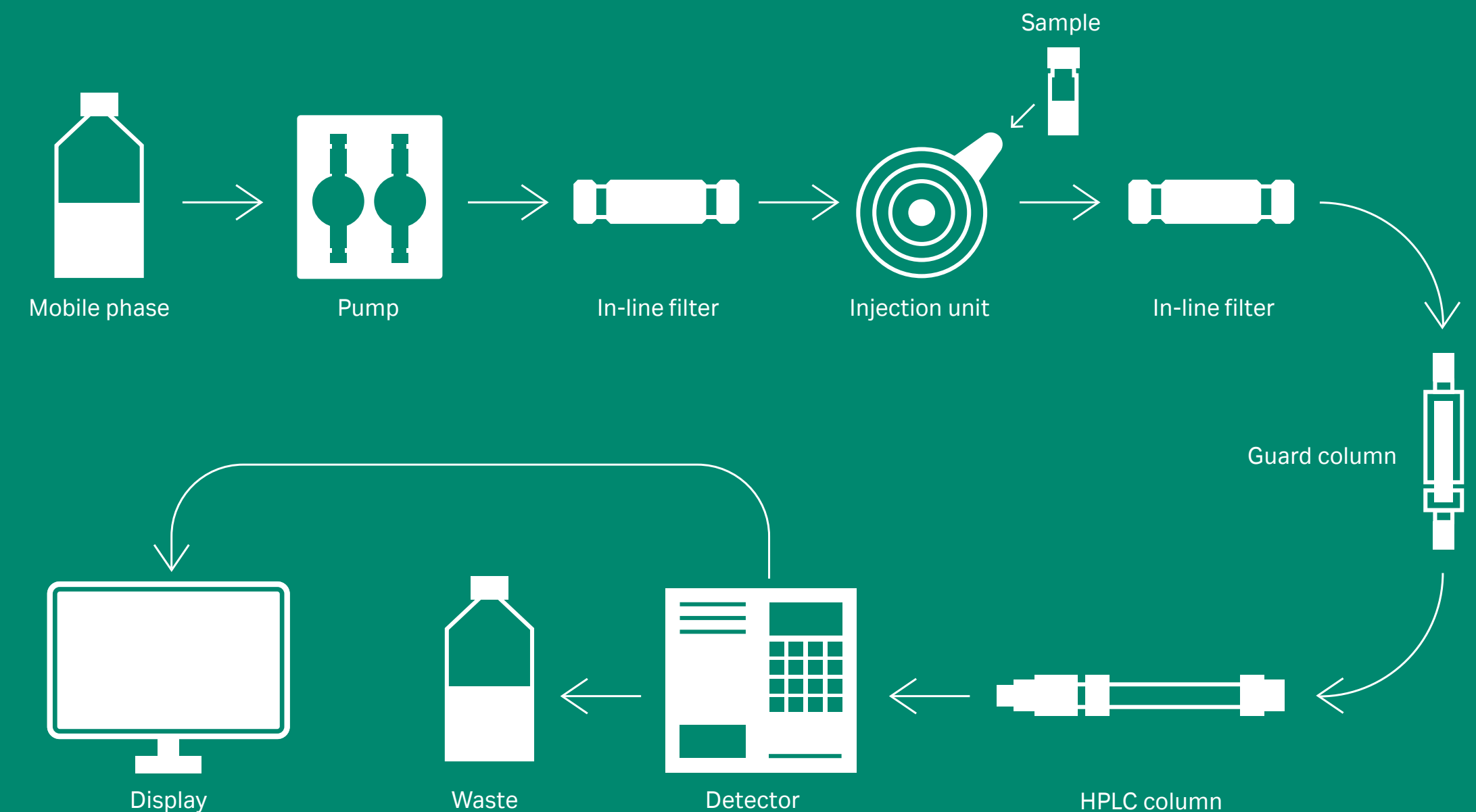
HPLC can be demanding in both high pressure in the workflow and results. Accurate results depend on various steps throughout the process. An analytical lab may process hundreds of samples per week, each requiring fast analysis generating reliable results. Therefore, the analyst needs to find and maintain the optimum balance between pace and quality.

Two key reasons for using filtration during HPLC sample and mobile phase preparation are to:

1. Protect the instrument's pump, valves, and tubing from damage or clogging due to particulate introduced by unfiltered samples or mobile phase.
2. Prevent particulates from building up on the delicate HPLC column and affecting data quality and reducing column life.

As the need for quality and throughput ever-increases, there is a trend towards automated HPLC sample preparation. Selecting a supplier who can offer options to streamline workflow, minimize waste, provide automation-compatible devices, or recycle used devices becomes increasingly important.

Chromatography, specifically HPLC, is a key focus area for many customers, and that focus drives filtration performance requirements. The need for consistency, is considered to be the most valuable factor in sample analysis.





# Simplify sample preparation with the Whatman™ syringe filter portfolio

A filtration solution to suit your application

## High performance

Broad selection of membranes, sizes and formats to meet most analytical needs, from basic to advanced

Puradisc™ syringe filters  
Anotop™ syringe filters

## Difficult filtration

Use for heavy particulate samples

Whatman GD/X™ syringe filters  
GD/XP  
Anotop Plus™ syringe filters

## Automated systems

Use in high throughput and/or dissolution systems

Roby  
850-DS

## Application specific

Dedicated uses: HPLC, IC and LC with certification; bioethanol and protein purification production; environmental samples prior to COD/DOC analysis

Puradisc™ Aqua syringe filters  
SPARTAN™ Certified syringe filters  
Protein Prep  
Anotop™ IC syringe filters  
Anotop™ LC syringe filters

## All in One

Integrated devices include the collection receptacle to save time, reduce waste and reduce sample handling

Autovial™ syringeless filter  
UniPrep™ syringeless filters  
Mini-UniPrep™ syringeless filters  
Mini-UniPrep™ G2 syringeless filters

## Advantage

Reliable quality, economical portfolio for basic applications

Whatman™ Uniflo™ syringe filters

## Mobile phase

Inline filter devices for degassing solutions used as the carrier phase in analytical equipment

Aqueous IFD  
Solvent IFD



# Whatman™ filtration device decision chart

		Solvents											
		Aqueous											
		Hydrophilic						Hydrophobic					
		CN	CA	PES	GMF	NYL	PVDF	ANP	RC	H-PTFE	DpPP*	PP*	PTFE†
<b>High performance</b> The workhorse of the lab, these syringe filters deliver premium quality with efficiency to meet most analytical needs, from basic to advanced.	<b>Anotop™ syringe filters</b>							✓					
	<b>Puradisc™ syringe filters</b>	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
<b>Difficult filtration</b> For use with high-particulate and viscous samples, these syringe filters contain two or more filter layers to allow efficient filtration without blockage for a cost-effective and efficient solution.	<b>Anotop™ Plus syringe filters</b>							✓					
	<b>Whatman GD/X™ syringe filters</b>		✓	✓	✓	✓	✓		✓		✓	✓	✓
	<b>GD/XP</b>			✓		✓	✓				✓	✓	✓
<b>Automated systems</b> These sturdy syringe filters are compatible with most high throughput and/or dissolution systems.	<b>Roby</b>				✓	✓			✓				
	<b>850-DS</b>			✓	✓	✓	✓						✓
<b>Application specific</b> Dedicated uses: HPLC, IC and LC with certification; bioethanol and protein purification production; environmental samples prior to COD/DOC analysis.	<b>Anotop™ IC syringe filters</b>							✓					
	<b>Anotop™ LC syringe filters</b>							✓					
	<b>Puradisc™ Aqua syringe filters</b>		✓										
	<b>SPARTAN™ Certified syringe filters</b>								✓				
	<b>Protein Prep</b>								✓				
<b>All-in-One</b> Integrated devices include the collection receptacle to save time, reduce waste and reduce sample handling	<b>Autovial™ syringeless filters</b>		✓	✓	✓	✓	✓					✓	✓
	<b>UniPrep™ syringeless filters</b>				✓	✓	✓						✓
	<b>Mini-UniPrep™ syringeless filters</b>			✓	✓	✓	✓		✓		✓	✓	✓
	<b>Mini-UniPrep™ G2 syringeless filters</b>				✓	✓	✓		✓			✓	✓
<b>Advantage</b> Reliable quality, economical portfolio for basic applications.	<b>Whatman™ Uniflo™ syringe filters</b>			✓	✓	✓	✓			✓			✓
<b>Mobile phase</b> Inline filter devices for degassing solutions used as the carrier phase in analytical equipment.	<b>Aqueous IFD</b>					✓							
	<b>Solvent IFD</b>											✓	

ANP = Anopore™  
 CA = Cellulose acetate  
 CN = Cellulose nitrate

DpPP = Polypropylene depth filter  
 GMF = Glass microfibrer  
 NYL = Nylon

PES = Polyethersulfone  
 PP = Polypropylene  
 H-PTFE = Hydrophilic Polytetrafluoroethylene

PTFE = Polytetrafluoroethylene  
 PVDF = Polyvinylidene difluoride  
 RC = Regenerated cellulose

\* Mildly Hydrophobic can be used for aqueous sample but exhibits elevated water breakthrough  
 † Select PTFE for applications where prevention of water intrusion is critical

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# Mobile phase filtration

# Mobile phase filtration

Whatman™ inline filters feature high-purity polypropylene housings to maintain sample purity and are available with a choice of filtration media to suit a range of aqueous and organic samples.

Whatman™ Inline Filter/Degassers (IFD) connect directly into a HPLC line to simultaneously filter and degas the mobile phase as it is being used. The Aqueous IFD has 0.2 µm nylon media designed to be used with mobile phase containing at least 20% aqueous component. The Solvent IFD contains 0.2 µm polypropylene filter media for mobile phase containing organic solvents.

Both devices have a polypropylene housing, the circumference of which is sealed by a security ring, fittings to accommodate 1/16" to 1/8" tubing and an air vent on the inlet with Luer lock cap to enable priming.

The inline filters work on the principle of "bubble point"—the point of pressure at which gases will pass through a wet membrane. If pressure is maintained below the bubble point, the gas will not pass through the membrane and is trapped by the particular filter device.

## Features and benefits

- Faster than traditional methods of mobile phase preparation, saving time in the laboratory
- Enhanced laboratory safety
- No need to purchase expensive degassing equipment
- Rugged, chemically resistant polypropylene construction
- Air vent on inlet with Luer lock cap
- Integrity-testable (bubble point method)





# Technical specifications

## Aqueous IFD and Solvent IFD

	Aqueous IFD	Solvent IFD
Bubble point*		
bar	2.9 (a)	0.76 (b)
psi	42 (a)	11.0 (b)
Maximum flow rate†	2.5 mL/min	2.5 mL/min
Filtration area	16 cm <sup>2</sup>	16 cm <sup>2</sup>

\* Typical values determined with (a) water and (b) isopropanol

† For effective gas bubble removal in HPLC

# Ordering information

## Aqueous IFD and Solvent IFD

Diameter	Pore size (µm)	Catalog number	Description	Media	Quantity/pack
50	0.2	05-713-407	Aqueous IFD*	Nylon	10
50	0.2	05-713-407	Aqueous IFD†	Nylon	10
50	0.2	09-703-90	Solvent IFD <sup>1</sup>	PP	10
50	0.2	09-800-984	Solvent IFD <sup>2</sup>	PP	10

\* Standard catalog numbers include O-rings: 1/32-5/32; accepts different diameter tubing 0.8-4 mm

† Catalog numbers with suffix A are non-o-ring style and accept 1/8 tubing only

PP—Polypropylene



## Whatman™ Aqueous In-Line Filter/Degasser (IFD)

Aqueous IFD from Cytiva is a polypropylene housed in-line filter/degasser (IFD) with nylon membrane. It connects to an HPLC line to simultaneously filter and degasses during mobile phase preparation.

### Ordering information

#### Whatman™ membrane filters for mobile phase filtration 47 mm (nonsterile)

Pore size (µm)	RC	Nylon	PTFE	Anopore™ inorganic membrane	Polyamide	CA	Quantity/pack
0.2	-	-	-	-	-	-	50
0.2	09-927-571	09-902-5	09-900-3	-	09-927-629	09-927-417	100
0.45	09-927-550	09-902-10	09-900-7	-	09-927-669	09-927-380	100

\* 0.5 µm





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# **Glass vacuum filtration devices**

# Glass vacuum filtration devices

Glass vacuum filtration devices come in two general styles: glass filtration assemblies and glass filter funnels. Both styles use a clamp to hold the upper funnel to the lower base, tightly sealing the filter in between to prevent fluid bypass. Borosilicate glass provides chemical compatibility and smooth surfaces for thorough cleaning. Selection of filter support is influenced by the nature of the fluid being filtered. Low particulate and low viscosity fluids filter well through integrated porous glass support while high particulate, viscous or aggressive solvents may require a removable glass or stainless steel frit to allow for more aggressive cleaning procedures and/or better chemical compatibility.

## Glass filtration assemblies

Glass filtration assemblies are designed in three pieces: upper funnel, lower base, and flask.

- Ideal for mobile phase filtration for analytical chemistry applications
- Selected for chemistry applications requiring minimized contact with multiple materials of construction
- Filter directly into a glass flask that can be removed and covered for analysis of filtrate, or retrieve filter for analysis of particulate collected
- Can be used for microbiological analysis by membrane filter (MF) technique

## Glass filter funnels

Filter funnels are designed in two pieces: upper funnel and lower base with stopper.

- Suitable for microbiological analysis by MF technique of water, beverages, pharmaceuticals, and personal care products.
- Versatile design allows individual filtration using a traditional side-arm Erlenmeyer flask or installation into a traditional 3- or 6-place manifold systems
- Variety of funnel sizes and membrane diameters to suit a range of applications from particulate and residue analysis to precipitation and biochemical studies





# Technical specifications

## Glass vacuum filtration devices

Upper funnel, lower base, and flask	Borosilicate glass
Cap	Silicon
Frit	Glass D2
Sieve	Stainless steel, PTFE coated
Seals	PTFE and silicone
Clamps	Aluminum and stainless steel
Hose connection	POM, thread RD14

## Ordering information

### Glass vacuum filtration devices

Catalog number	Format; system	Membrane diameter	Funnel volume	Flask volume or Stopper size	Filter support
09-924-548	Filter funnel	24-25 mm	25 mL	#5 Stopper	Integrated glass frit
09-927-802	Filter funnel	24-25 mm	25 mL	#5 Stopper	Stainless steel with PTFE gasket
09-907-4	Filter funnel	24-25 mm	50 mL	#5 Stopper	Integrated glass frit
09-907-2	Filter funnel	47-50 mm	300 mL	#8 stopper	Integrated glass frit
09-907-6	Filter funnel	47-50 mm	300 mL	#8 stopper	Stainless steel with PTFE gasket
09-907-3	Filter funnel	90 mm	1000 mL	#8 stopper	Integrated glass frit
09-927-400	Filter funnel; GV 025/0	24-25 mm	60 mL	-	Glass frit with PTFE centering ring
09-927-292	Filtration assembly	24-25 mm	60 mL	500 mL	Glass frit with PTFE centering ring
09-927-399*	Filter funnel; GV 050/0	47-50 mm	250 mL	-	Glass frit with PTFE centering ring
09-927-396*	Filtration assembly	47-50 mm	250 mL	1 L	Glass frit with PTFE centering ring
09-927-297*	Filtration assembly	47-50 mm	250 mL	1 L	PTFE coated sieve with PTFE centering ring
09-927-393	Filter funnel; GV100/0	100 mm	500 mL	-	Glass frit with PTFE centering ring
09-927-307	Filter funnel; GV 100/1	100 mm	500 mL	-	PTFE coated sieve with PTFE centering ring

\* Supplied with silicone cap with air inlet



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# **High performance syringe filters**



# High performance syringe filters

## Whatman™ Puradisc™ syringe filters

Filtration of your samples is important as a preventive maintenance step for HPLC or UHPLC analysis.

Keep unwanted particulate matter from entering the injector to increase column life, shorten run time, and optimize peak shape.

### Features and benefits

- Pigment-free polypropylene (polycarbonate for Puradisc™ syringe filters 30 mm)
- Standard inlet and outlet Luer connectors
- Optional sterile, medical-grade blister pack
- Tube-tip format (optional) for accurate dispensing into a micro-vial
- Choice of membrane or glass microfiber filter media
- Choice of filter sizes (4, 13, 25 or 30 mm) to minimize sample loss
- Sterile\* option for critical applications
- Wide range of membranes to suit different sample types

\* Refers to sterilization by filtration for small sample use which is an industry term for filters of pore size 0.2 µm or smaller as referenced in guidance such as EPA Guidance for Industry Sterile Drug Products Produced by Aseptic Processing — Current Good Manufacturing Practice Section IX, Part B (September 2004).



# Technical specifications

## Puradisc™ syringe filters

	Puradisc™ 4 syringe filters	Puradisc™ 13 syringe filters	Puradisc™ 25 syringe filters	Puradisc™ 30 syringe filters
Housing	Polypropylene	Polypropylene	Polypropylene	Polycarbonate/ Polypropylene
Filtration area	0.2 cm <sup>2</sup>	1.3 cm <sup>2</sup>	4.2 cm <sup>2</sup>	5.7 cm <sup>2</sup>
Maximum pressure	75 psi (5.2 bar)	75 psi (5.2 bar)	75 psi (5.2 bar)	100 psi (6.9 bar)
Volume hold-up full housing with air purge	< 10 µL	< 25 µL	< 100 µL	< 50 µL
Dimensions	10.1 × 23.5 mm	16.3 × 19.8 mm	22.9 × 28.4 mm	26 × 34 mm
Weight	0.55 g	0.95 g	2.7 g	4.7 g
Volume throughput	Up to 2 mL	Up to 10 mL	Up to 100 mL	Up to 100 mL
Inlet connection	Female Luer lock	Female Luer lock	Female Luer lock	Female Luer lock
Outlet connection	Male Luer	Male Luer	Male Luer	Male Luer
Sterilization	Autoclave at 121°C (131°C max)	Autoclave at 121°C (131°C max)	Autoclave at 121°C (131°C max)	Autoclave at 121°C (131°C max)

## Ordering information

### Puradisc™ syringe filters 4 mm

Pore size (µm)	Catalog number			Quantity/pack
	Nylon	PVDF	PTFE	
<b>Nonsterile with tube tip</b>				
0.2	–	09-910-1	–	50
0.45	–	09-926-40	–	50
<b>Sterile without tube tip</b>				
0.2	09-913-2	09-910-15	–	50
<b>Nonsterile without tube tip</b>				
0.2	09-913-6	09-910-11	09-911-5	100
0.2	09-9131-1	09-302-108	09-911-3	500
0.45	09-913-6	09-910-12	09-924-564	100
0.45	09-913-7	09-926-38	09-911-7	500

PTFE—Polytetrafluoroethylene  
PVDF—Polyvinylidene difluoride





# Ordering information

## Puradisc™ syringe filters 13 mm (nonsterile)

Pore size (µm)	Catalog number						Quantity/pack
	CA	Nylon	PES	PP	PTFE	GMF	
<b>With tube tip</b>							
0.2	-	-	-	-	9302109	-	50
0.2	-	-	-	-	9302178	-	100
0.45	-	-	-	-	09302110	-	50
0.45	-	-	-	-	09302179	-	100
<b>Without tube tip</b>							
0.1	-	05710A	-	-	099111	-	100
0.2	-	-	0990913	099127	099116	-	100
0.2	-	0991313	-	09940034	099114	-	500
0.2	-	09302112	-	-	0991113	-	2000
0.45	09927296	-	0990914	099128	099112	-	100
0.45	-	-	0990910	099124	099118	0991434	500
0.45	-	0975445	-	-	0975446	-	2000
1.0	-	-	-	-	0991111	-	100
5.0	-	-	-	-	09302212	-	100
GF/F 0.7*	-	-	-	-	-	099145	100
GF/B 1.0*	-	-	-	-	-	099142	100
GF/C™ 1.2*	-	-	-	-	-	09940035	100
GF/A 1.6*	-	-	-	-	-	099141	100
GF/A 1.6	-	-	-	-	-	09302213	500
GF/D 2.7*	-	-	-	-	-	099144	100
934-AH™ 1.5*	-	-	-	-	-	09924568	100

\* Particle retention rating

CA—Cellulose acetate  
GMF—Glass microfiber  
PES—Polyethersulfone  
PP—Polypropylene

PTFE—Polytetrafluoroethylene  
PVDF—Polyvinylidene difluoride  
RC—Regenerated cellulose  
H-PTFE—Hydrophilic PTFE

## Puradisc™ syringe filters 13 mm (sterile)

Pore size (µm)	Catalog number			Quantity/pack
	PVDF	PES	RC	
<b>Without tube tip</b>				
0.2	0991018	099094	09927409	50
0.45	0991019	099095	-	50
<b>With tube tip</b>				
0.2	05713410	-	09927414	50

# Ordering information

## Puradisc™ syringe filters 25 mm

Pore size (µm)	Catalog number									Quantity/pack
	Nylon	PES	PVDF	PP	PTFE	H-PTFE	GMF	DpPP	RC	
<b>Sterile</b>										
0.2	–	05713386	–	–	–	–	–	–	–	50
0.2	–	09302120	–	–	–	–	–	–	–	1000
0.45	–	05713387	–	–	–	–	–	–	–	50
0.45	–	09302121	–	–	–	–	–	–	–	1000
1.0	–	05713388	–	–	–	–	–	–	–	50
<b>Nonsterile</b>										
0.1	–	–	–	–	05713395	–	–	–	–	50
0.1	–	–	–	–	05713851	–	–	–	–	1000
0.2	05710A	–	09302114	05713401	05713396	09924595	–	–	01-182-394	50
0.2	057101A	05713389	09302117	05713403	05713399	09924596	–	–	01-182-395	200
0.2	057103A	0991027	–	09920150	22022733	09924597	–	–	01-182-396	1000
0.45	05710B	–	09927760	–	05713397	09924598	–	05713402	09981923	50
0.45	057101B	05713390	09302118	–	05713400	09924599	–	05713404	09981924	200
0.45	057102B	–	–	–	–	–	–	–	–	500
0.45	057103B	05713384	09806107	–	5713392	09924600	–	05713404A	09981925	1000
0.7 GF/F*	–	–	–	–	–	–	09302116	–	–	50
0.7 GF/F*	–	–	–	–	–	–	05713383	–	–	200
0.7 GF/F*	–	–	–	–	–	–	05713171	–	–	1000
1.0	05710C	–	–	–	05713398	–	–	–	–	50
1.0	057101C	05713391	–	–	–	–	–	–	–	200
1.0	057103C	09927823	–	–	09302216	–	–	–	–	1000
1.0 GD 1*	–	–	–	–	–	–	05713393	–	–	100
1.0 GD 1*	–	–	–	–	–	–	09302217	–	–	1000
2.0 GD 2*	–	–	–	–	–	–	05713394	–	–	100

\* Particle retention rating

DpPP—Polypropylene depth filter  
GD—Graded density  
GMF—Glass microfiber

H-PTFE = Hydrophilic PTFE  
PES—Polyethersulfone  
PP—Polypropylene

PTFE—Polytetrafluoroethylene  
PVDF—Polyvinylidene difluoride  
RC = Regenerated cellulose



# Ordering information

## Puradisc™ syringe filters 30 mm

Media/housing	Catalog number					Connection in/out	Quantity/pack
	CA/PC	CN/PC	PTFE/PP	PTFE/PC	RC/PP		
Pore size (µm)							
0.2	09302155*	-	09302188*	-	-	FLL/ML	50
0.2	09302161	-	-	-	9927318*	FLL/ML	50
0.2	09302156*†	-	-	-	-	FLL/MLL	50
0.2	09302162	-	09302180	-	-	FLL/ML	100
0.2	09302163	-	09302181	09927360*	-	FLL/ML	500
0.2	09302164	-	-	-	-	FLL/MLL	500
0.45	09302157*	-	-	-	09927425*	FLL/ML	50
0.45	09302165	-	-	-	-	FLL/ML	50
0.45	09302166	-	09302182	-	-	FLL/ML	100
0.45	09302167	-	09302183	-	-	FLL/ML	500
0.8	09302168	-	-	-	-	FLL/ML	50
0.8	09302158*	-	-	-	-	FLL/ML	50
0.8	09302169	-	-	-	-	FLL/ML	500
1.0	-	-	09302184	-	-	FLL/ML	100
1.0	-	-	09302185	-	-	FLL/ML	500
1.2	09302159*	-	-	-	-	FLL/ML	50
1.2	09302170	-	-	-	-	FLL/ML	50
1.2	09302171	-	-	-	-	FLL/ML	500
5.0	-	09302160*	-	-	-	FLL/ML	50
5.0	-	09302172	-	-	-	FLL/ML	50
5.0	-	09302173	09302186*	-	-	FLL/ML	100
5.0	-	09302174	09302187	-	-	FLL/ML	500

\* Sterile  
† Endotoxin-free according to LAL test (USPXXII), sensitivity: 0.25 EU/mL

CA—Cellulose acetate  
CN—Cellulose nitrate  
FLL—Female Luer lock

ML—Male Luer  
MLL—Male Luer lock  
PC—Polycarbonate

PP—Polypropylene  
RC—Regenerated cellulose

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# Application specific syringe filters



# Application specific syringe filters

## Whatman™ SPARTAN™ HPLC certified syringe filters

SPARTAN™ syringe filters ensure reproducible results from the filtration of organic or aqueous solutions for HPLC. For batch-to-batch consistency, the SPARTAN™ range of filters is tested and certified for the absence of UV-absorbing substances at wavelengths of 210 and 254 nm with water, methanol, and acetonitrile.

### Features and benefits

- Ready-to-use filter unit with a hydrophilic, low protein-binding membrane made of regenerated cellulose.
- Excellent chemical resistance against the standard aqueous and organic HPLC solvents.
- 13 mm diameter with extremely low dead volume < 10 µL.
- Use for any application requiring a chemically resistant, hydrophilic, low protein-binding membrane.
- Documented batch-to-batch quality and consistency ensure reproducible results.
- 13 mm diameter with Mini-Tip outlet provides minimized hold-up volume similar to a 4mm syringe filter.



# Ordering information

## SPARTAN™ HPLC certified syringe filters

Diameter (mm)	Pore size (µm)	Catalog number	Membrane/housing material	Connection (in/out)	Color code	Quantity/pack
13	0.2	09302142	RC/PP	FLL/Mini-tip	Dark brown	100
13	0.2	09302143	RC/PP	FLL/Mini-tip	Dark brown	500
13	0.2	09302144	RC/PP	FLL/ML	Dark brown	100
13	0.2	09302145	RC/PP	FLL/ML	Dark brown	500
13	0.45	09302146	RC/PP	FLL/Mini-tip	Light brown	100
13	0.45	45550001	RC/PP	FLL/Mini-tip	Light brown	500
13	0.45	09302148	RC/PP	FLL/ML	Light brown	100
13	0.45	09302149	RC/PP	FLL/ML	Light brown	500
30	0.2	09302151	RC/PP	FLL/ML	Dark brown	500
30	0.45	09302152	RC/PP	FLL/ML	Light brown	50
30	0.45	09302154	RC/PP	FLL/ML	Light brown	500



### Technical tip

Download your SPARTAN™ HPLC certified syringe filter 13 and 30 batch certificate from the Internet to document the purity of each batch.

To download, visit

**[cytiva.com/support/quality/certificates](https://www.cytiva.com/support/quality/certificates)**

Enter the lot number, and you will receive the lot-specific chromatogram and test conditions.



## Whatman™ Anotop™ IC syringe filters

Anotop™ IC syringe filters for the preparation of samples for subsequent ion chromatography (IC) and HPLC analysis ensure very low levels of anion leaching.

### Features and benefits

- 10 mm and 25 mm diameter syringe filters
- Each batch certified for IC
- Enhanced consistency of analytical results
- Extended column life
- Certified low levels of anion leaching for improved results

## Whatman™ Anotop™ LC syringe filters

Use Anotop™ LC syringe filters for simple and effective preparation of samples prior to HPLC. These syringe filters preserve the life of your column by efficiently removing particulates from your analytical samples. Because the Anotop™ LC syringe filter is made from pigment-free polypropylene and the Anopore™ inorganic membrane, you can be sure that after filtration the level of extractable UV absorbing compounds is minimal.

### Features and benefits

- Better consistency of analytical results and longer column life
- Extremely low levels of UV absorbing compounds for better HPLC results
- Easy to use with a wide range of sample types





# Technical specifications

## Anotop™ syringe filters

	Anotop™ 10 IC syringe filters	Anotop™ 10 LC syringe filters	Anotop™ 25 IC syringe filters	Anotop™ 25 LC syringe filters
Housing	Polypropylene	Polypropylene (pigment free)	Polypropylene	Polypropylene (pigment free)
Filtration area	0.78 cm <sup>2</sup>	0.78 cm <sup>2</sup>	4.78 cm <sup>2</sup>	4.78 cm <sup>2</sup>
Maximum pressure	100 psi (6.9 bar)	100 psi (6.9 bar)	100 psi (6.9 bar)	100 psi (6.9 bar)
Volume hold-up with air purge	< 20 µL	< 20 µL	< 150 µL	< 150 µL
Membrane diameter	10 mm	10 mm	25 mm	25 mm
Construction process	Thermal weld	Thermal weld	Thermal weld	Thermal weld
Extractable materials	Negligible	Negligible	Negligible	Negligible
Average membrane thickness	60 µm	60 µm	60 µm	60 µm
Device width	15.4 mm	15.4 mm	36.8 mm	36.8 mm
Device length	18.5 mm	18.5 mm	26.3 mm	26.3 mm
Inlet connection	Female Luer lock	Female Luer lock	Female Luer lock	Female Luer lock
Outlet connection	Male Luer	Male Luer	Male Luer	Male Luer
Membrane type	Anopore™ syringe filter	Anopore™ syringe filter	Anopore™ syringe filter	Anopore™ syringe filter

## Anotop™ IC syringe filters

Anion	Level (ppb)	Anion	Level (ppb)
Fluoride	< 10	Phosphate	< 75
Chloride	< 15	Nitrite	< 30
Bromide	< 20	Nitrate	< 30
Sulfate	< 30	–	–

Typical average anion leaching levels in 18 MΩ × cm (MegaOhm × cm) water at 20°C

# Ordering information

## Anotop™ IC and Anotop™ LC syringe filters

Pore size (µm)	Membrane	Catalog number	Quantity/pack
<b>Anotop™ 10 IC syringe filters</b>			
0.2	Anopore™ syringe filters	09302122	100
0.2	Anopore™ syringe filters	09302123	200
<b>Anotop™ 25 IC syringe filters</b>			
0.2	Anopore™ syringe filters	09302125	200
<b>Anotop™ 10 IC blister syringe filters</b>			
0.2	Anopore™ syringe filters	09302124	50
0.2	Anopore™ syringe filters	0992628	250
<b>Anotop™ 10 LC syringe filters</b>			
0.2	Anopore™ syringe filters	09927387	100
0.2	Anopore™ syringe filters	09927386	200
<b>Anotop™ 25 LC syringe filters</b>			
0.2	Anopore™ syringe filters	09927385	100
0.2	Anopore™ syringe filters	09927388	200



**5**

**Difficult to filter**



# Difficult to filter

## Whatman GD/X™ syringe filters

The Whatman GD/X™ syringe filter range is specifically designed for difficult to filter, high particulate loaded samples. Constructed of a pigment-free polypropylene housing with a prefiltration stack of GMF 150 (graded density) and GF/F glass microfiber media, these filters remove sample contamination and allow you to filter even the most difficult samples with less hand pressure. Whatman GD/X™ syringe filters can process three to seven times more sample volume than standard syringe filters.

GMF 150 and GF/F are produced from 100% borosilicate glass microfiber. Graded density GMF 150 medium has a coarse top layer meshed with a fine bottom layer that retains particles to 1.0 µm. A GF/F filter then retains particles down to 0.7 µm. The prefilter stack ends with a final membrane. The filter construction facilitates exceptional loading capacity with fast flow rates. This prevents the build-up of back pressure typically caused by the blocking of an unprotected membrane.

### Features and benefits

- 13 mm devices for samples up to 10 mL and 25 mm devices for samples greater than 10 mL. The volume of sample that can be filtered through each filter depends on the characteristics of the sample.
- Sterile options.
- Pigment-free polypropylene housing.
- Prefiltration stack of GMF 150 (graded density) and GF/F glass microfiber media.
- Minimizes sample contamination.
- Requires less hand pressure, even with the most difficult samples.
- Processes three to seven times more sample volume.



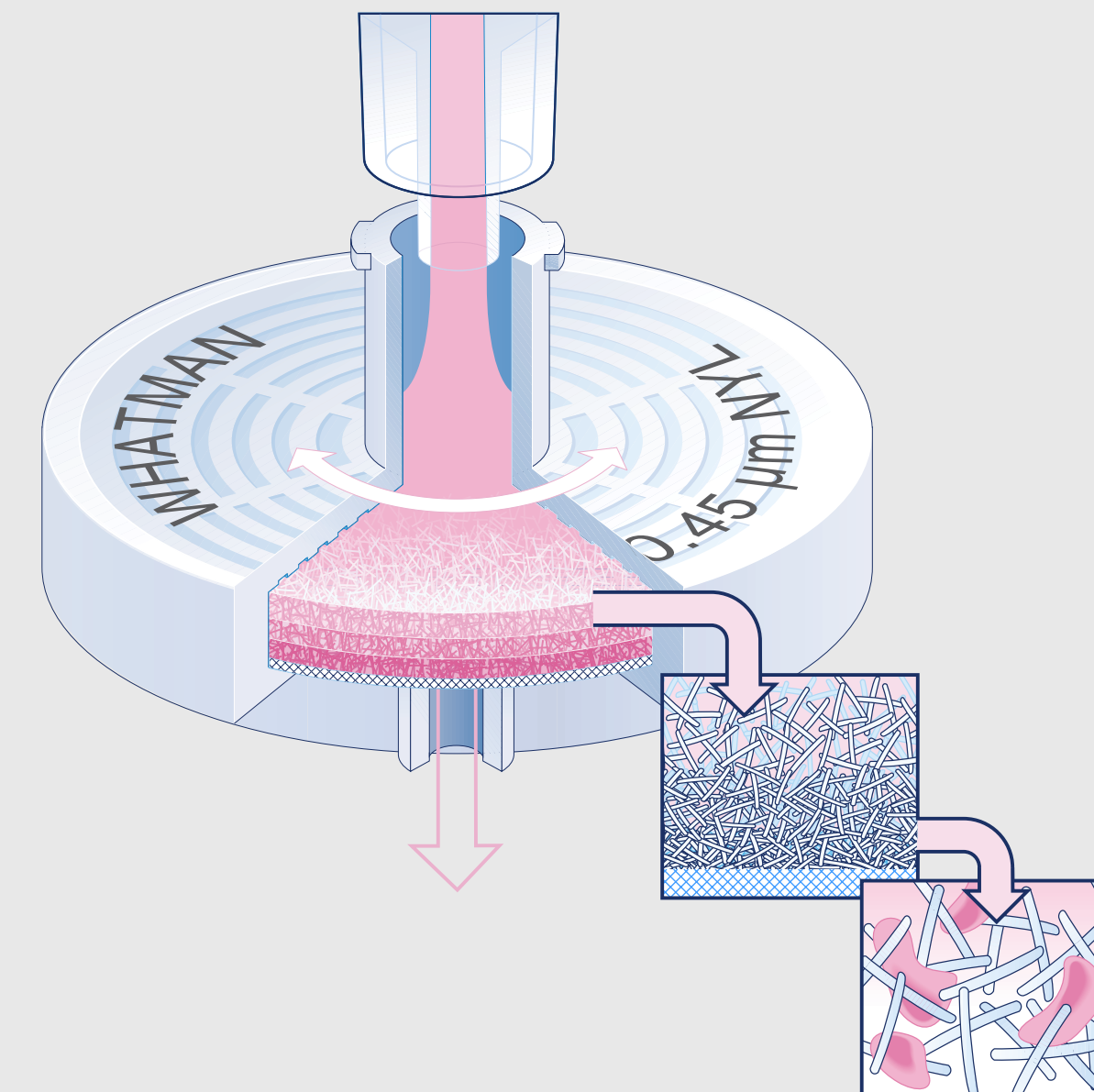
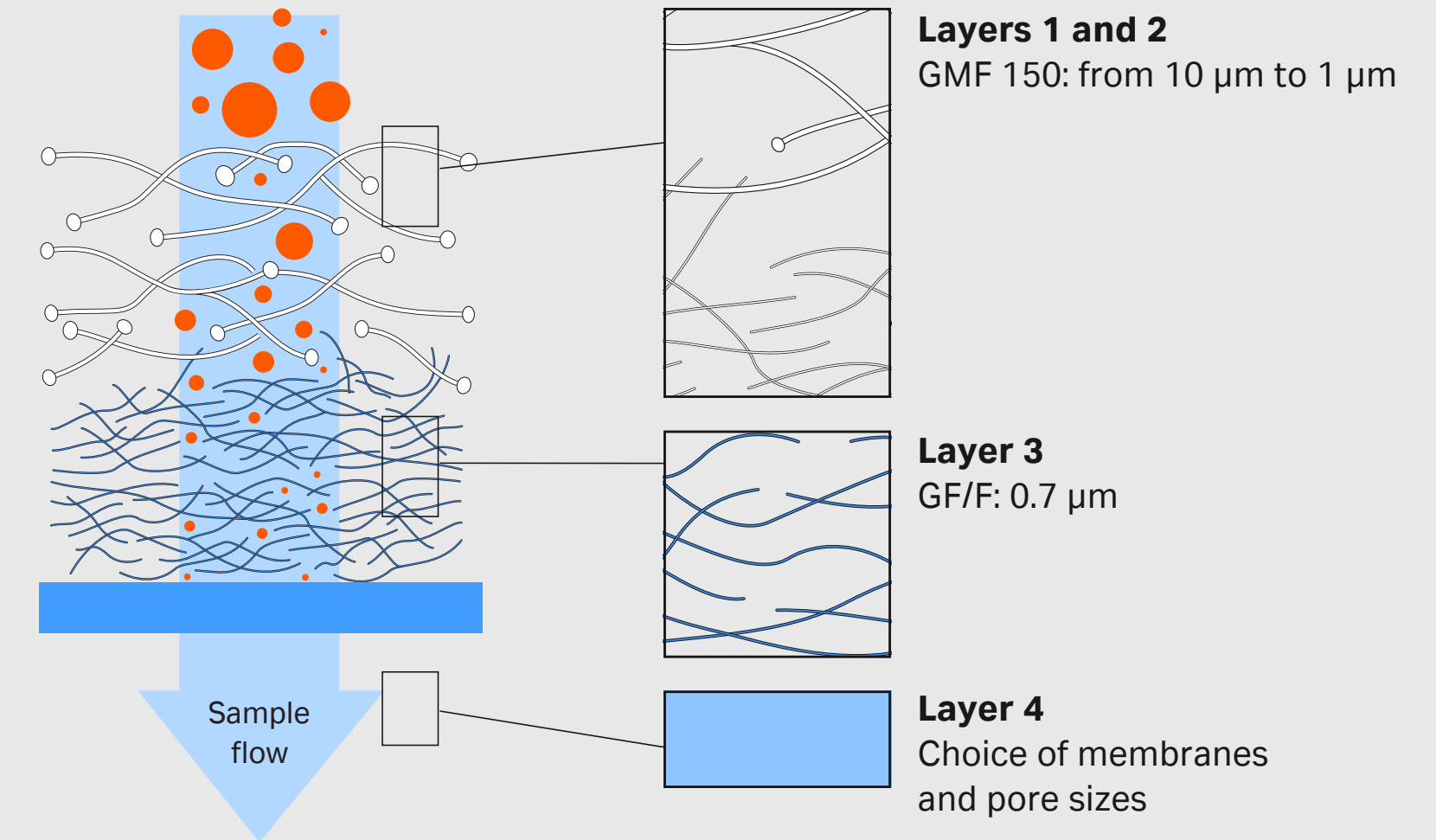


# Technical specifications

## Whatman GD/X™ syringe filters

	Whatman GD/X™ 13 mm syringe filters	Whatman GD/X™ 25 mm syringe filters
Housing	Polypropylene (pigment free)	Polypropylene (pigment free)
Filtration area	1.3 cm <sup>2</sup>	4.6 cm <sup>2</sup>
Maximum pressure	100 psi (6.9 bar)	75 psi (5.2 bar)
Volume hold-up*—full housing	0.5 mL	1.4 mL
—with air purge	50 µL (approx)	250 µL (approx)
Dimensions*	20.8 × 30.0 mm	20.8 × 30.0 mm
Weight	3 g (approx)	3 g (approx)
Flow direction	Flow should enter from the inlet	Flow should enter from the inlet
Inlet connection	Female Luer lock	Female Luer lock
Outlet connection	Male Luer	Male Luer
Sterilization	Autoclave at 121°C (131°C max) at 15 psi (1 bar) for 20 min	Autoclave at 121°C (131°C max) at 15 psi (1 bar) for 20 min
Glass microfiber prefiltration media	100% borosilicate glass fiber GMF 150 10 µm: 1 µm GF/F 0.7 µm	100% borosilicate glass fiber GMF 150 10 µm: 1 µm GF/F 0.7 µm

\* Housings are the same size but the filtration size is smaller



# Ordering information

## Whatman GD/X™ syringe filters

Pore size (µm)	Catalog number	Media	Quantity/pack
<b>Whatman GD/X™ 13 mm syringe filters—nonsterile</b>			
0.2	0992734A	CA	150
0.45	0992734B	CA	150
0.2	0992726A	Nylon	150
0.2	0992727A	Nylon	1500
0.45	0992726B	Nylon	150
0.45	0992727B	Nylon	1500
0.2	0992732A	PES	150
0.45	0992732B	PES	150
0.2	0992728A	PVDF	150
0.45	0992728B	PVDF	150
0.45	5713722	PVDF	1500
0.2	0992733A	PP†	150
0.45	0992733B	PP†	150
0.2	0992730A	PTFE	150
0.2	0992731A	PTFE	1500
0.45	0992730B	PTFE	150
0.45	0992731B	PTFE	1500
1.6*	0992735A	GF/A†	150
1.0*	0992736A	GF/B†	150
1.2*	0992737A	GF/C™†	150
2.7*	0992738A	GF/D†	150
0.7*	0992739A	GF/F†	150
0.45*	0992741A	GMF	150
<b>Whatman GD/X™ 25 mm syringe filters—nonsterile</b>			
0.45	05713929	RC	150
0.2	05713935	RC	1500
0.45	5713930	RC	1500
0.2	0992734C	CA	150
0.45	0992734D	CA	150
0.45	09302105	CA	1500
0.2	09302101	Nylon high charge (positive)	150
0.45	09302102	Nylon high charge (positive)	150
0.2	0992726C	Nylon	150
0.2	0992727C	Nylon	1500
0.45	0992726D	Nylon	150
0.45	0992727D	Nylon	1500
5.0	0992748	Nylon	150
5.0	09302103	Nylon	1500

Pore size (µm)	Catalog number	Media	Quantity/pack
<b>Whatman GD/X™ 25 mm syringe filters—nonsterile (continuation)</b>			
0.2	0992732C	PES	150
0.2	09302104	PES	1500
0.45	0992732D	PES	150
0.45	09302211	PES	1500
0.2	0992728C	PVDF	150
0.2	0992729C	PVDF	1500
0.45	0992728D	PVDF	150
0.45	0992729D	PVDF	1500
0.2	0992733C	PP	150
0.45	0992733D	PP	150
0.45	09925145	PP	1500
0.2	0992730C	PTFE	150
0.2	0992731C	PTFE	1500
0.45	0992730D	PTFE	150
0.45	0992731D	PTFE	1500
1.6*	0992735B	GF/A†	150
1.6*	09302106	GF/A†	1500
1.0*	0992736B	GF/B†	150
1.2*	0992737B	GF/C™†	150
2.7*	0992738B	GF/D†	150
0.7*	0991029	GF/F†	150
0.7*	05713170	GF/F†	1500
0.45*	0992741B	GMF†	150
0.45*	0992742B	GMF†	1500
1.5*	0992740B	934-AH™†	150
<b>Whatman GD/X™ 25 mm syringe filters—sterile</b>			
0.2	0992743A	PES	50
0.45	0992743B	PES	50
0.2	0992754A	PVDF	50
0.45	0992754B	PVDF	50
0.45*	0992756	GMF†	50
0.2	0992755A	CA	50
0.45	0992755B	CA	50

\* Glass microfiber particle retention rating  
 † Contains GMF 150 without the GF/F prefilter  
 ‡ Mildly hydrophobic

CA—Cellulose acetate  
 GF—Glass fiber  
 GMF - Glass microfiber  
 PES—Polyethersulfone

PP—Polypropylene  
 PTFE—Polytetrafluoroethylene  
 PVDF—Polyvinylidene difluoride  
 RC—Regenerated cellulose



# Whatman™ GD/XP syringe filters

GD/XP disposable syringe filters are suitable for use with samples that require inorganic ion analysis, as levels of ion extractables are minimized. They are also an alternative choice for users requiring a filter that exhibits extremely low protein binding characteristics.

GD/XP syringe filters contain a two-layer prefilter stack comprised of 20 µm and 5 µm polypropylene filters. The last stage of filtration is by membrane, which is positioned below the prefilter stack

## Technical specifications

### GD/XP syringe filters

	GD/XP 13 mm syringe filters
Housing	Polypropylene (pigment free)
Filtration area	4.6 cm <sup>2</sup>
Maximum pressure	75 psi (5.2 bar)
Volume hold-up full housing with air purge	1.4 mL 250 µL (approx)
Dimensions	20.8 × 30.0 mm
Weight	3 g (approx)
Flow direction	Flow should enter from the inlet
Inlet connection	Female Luer lock
Outlet connection	Male Luer
Sterilization	Autoclave at 121°C (131°C max) at 15 psi (1 bar) for 20 min
Prefiltration media	PP 20 µm: 5 µm

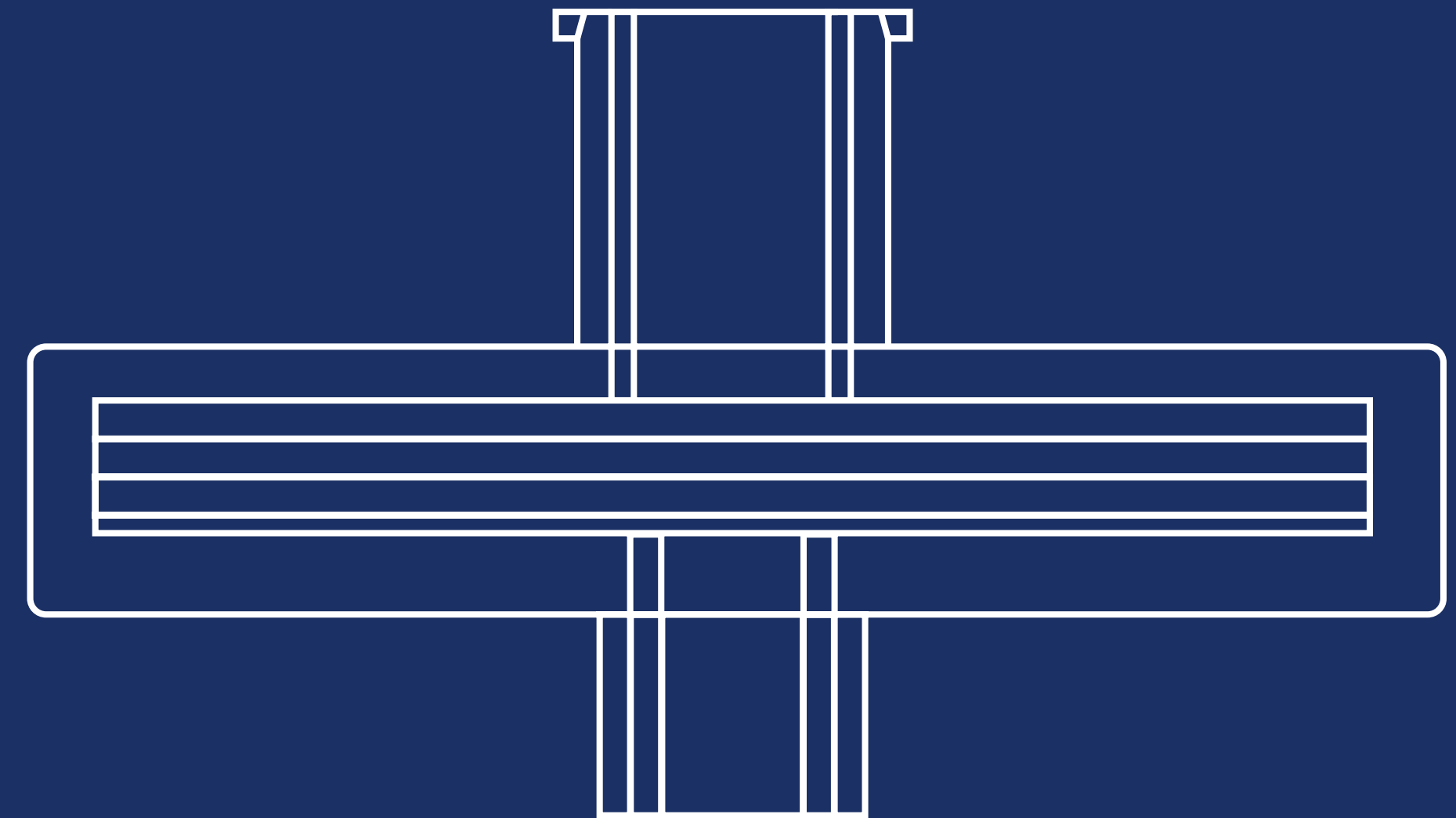


# Ordering information

## GD/XP syringe filters

Diameter (mm)	Pore size (µm)	Catalog number	Media	Hydrophilic	Quantity/pack
25	0.45	0993020	Nylon	Yes	150
25	0.45	0993021	Nylon	Yes	1500
25	0.45	0993030	PES	Yes	150
25	0.45	0993031	PES	Yes	1500
25	0.45	0993022	PVDF	Yes	150
25	0.45	0993023	PVDF	Yes	1500
25	0.45	0993026	PP	No	150
25	0.45	09927890	DpPP	No	150
25	0.45	0993024	PTFE	No	150
25	0.45	0993029	DpPP	No	1500

DpPP—Polypropylene depth filter  
 PES—Polyethersulfone  
 PP—Polypropylene  
 PVDF—Polyvinylidene difluoride  
 PTFE—Polytetrafluoroethylene



# Whatman™ Anotop™ syringe filters 10 Plus and Whatman™ Anotop™ syringe filters 25 Plus

The Anotop™ Plus syringe filter offers the added benefit of an integral glass microfiber prefilter. This unit enables difficult and hard-to-filter solutions to be filtered without adversely affecting the filtration efficiency of the final membrane. This can remove the need for sample clean-up or expensive and time-consuming sequential filtration.



## Technical specifications

### Anotop™ syringe filters

	Anotop™ 10 Plus syringe filters	Anotop™ 25 Plus syringe filters
Housing	Polypropylene	Polypropylene
Filtration area	0.78 cm <sup>2</sup>	4.78 cm <sup>2</sup>
Maximum pressure	100 psi (6.9 bar)	100 psi (6.9 bar)
Volume hold-up	< 30 μL	< 200 μL
Prefilter type	Glass microfiber (binderless)	Glass microfiber (binderless)
Membrane diameter	10 mm	25 mm
Membrane type	Anopore™ syringe filters	Anopore™ syringe filters
Average membrane thickness	60 μm	60 μm
Device width	15.4 mm	36.8 mm
Device length	18.5 mm	26.3 mm
Device shape	Hexagonal	Hexagonal
Construction process	Thermal weld	Thermal weld
Inlet connection	Female Luer lock	Female Luer lock
Outlet connection	Male Luer	Male Luer
Protein adsorption	Medium/High	Medium/High
Extractable materials	Low	Low
Cytotoxicity	Non-cytotoxic	Non-cytotoxic

## Ordering information

### Anotop™ syringe filters

Pore size (μm)	Media	Catalog number	Quantity/pack
<b>Anotop™ 10 Plus syringe filters</b>			
0.02	Anopore™ with prefilter	0992616	50
0.1	Anopore™ with prefilter	0992615	50
0.2	Anopore™ with prefilter	0992614	50
0.02	Anopore™ with prefilter, sterile	0992619	50
0.1	Anopore™ with prefilter, sterile	0992618	50
0.2	Anopore™ with prefilter, sterile	0992617	50
<b>Anotop™ 25 Plus syringe filters</b>			
0.02	Anopore™ with prefilter	0992622	50
0.1	Anopore™ with prefilter	0992621	50
0.2	Anopore™ with prefilter	0992620	50
0.02	Anopore™ with prefilter, sterile	0992626	50
0.1	Anopore™ with prefilter, sterile	0992625	50
0.2	Anopore™ with prefilter, sterile	0992624	50
0.2	Anopore™ with prefilter	0992623	200



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# All-in-one filters and filter vials



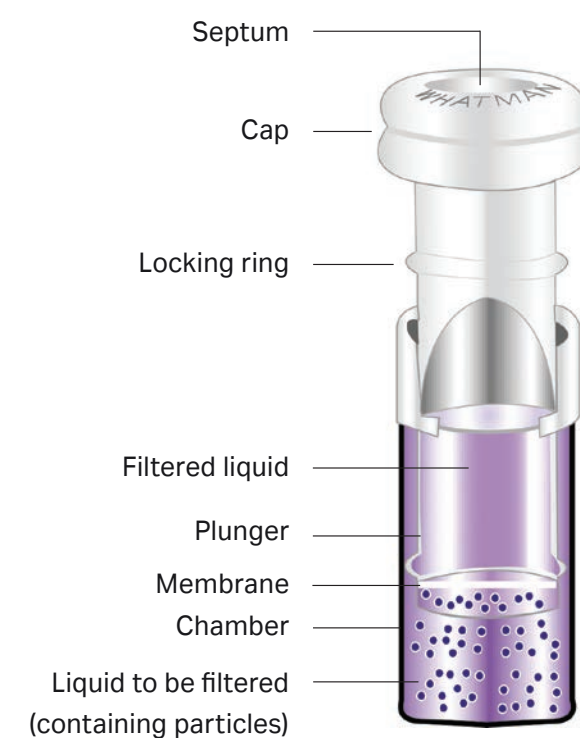
# All-in-one filters and filter vials

Products to support easier HPLC workflow that can be utilized with most common autosamplers.

## Whatman™ Mini-UniPrep™ syringeless filters

The Mini-UniPrep™ syringeless filters are compatible with most autosamplers

- Easy-to-use design supports sample preparation outside of the lab if needed.
- Process samples in one third the time of traditional syringe filtration.
- Replaces syringe, syringe filter, vial, and cap in one consumable.
- Polypropylene or glass chamber options to prevent interference from chemical leaching.
- Amber vials available for light sensitive samples.
- Multi-compressors available for ease of use.
- 12 × 33 mm vial can be used to filter up to 400 µL.





### Features and benefits

- All-in-one filtration process allows you to process sample loads in one-third of the time.
- Wide range of membrane choices from 0.2 and 0.45 µm pore sizes to meet specific sample application requirements.
- Compatible with most major autosamplers.
- Fewer consumables are required, reducing costs by up to 40%.

### A variety of Mini-UniPrep™ filters to meet your needs

- Amber Mini-UniPrep™ is available for customers who need to filter light-sensitive samples.
- Slit septa Mini-UniPrep™ is available for customers using robotics to maximize throughput.

## Amber Whatman™ Mini-UniPrep™ filter vial

### Features and benefits

- Amber colorant prevents photodegradation of light sensitive samples.
- Same colorant used in pharmaceutical containers designed to meet United States Pharmacopeia specifications for light resistance.
- Translucent amber chamber and plunger enable easy visual inspection.

## Slit septa Whatman™ Mini-UniPrep™ filter vial

### Features and benefits

- Slit septum cap enables Mini-UniPrep™ filter vial use with current robotics on HPLC instruments for high throughput automation.
- Durable yet flexible slit septum cap has been specially designed for instruments with sensitive sampling needs. Sample evaporation is minimal.
- Pre-slit septa allows easier needle penetration.





# Selection

## Mini-UniPrep™ filtering media

Sample type	Suitable Mini-UniPrep™ media
High particulate laden liquids	Glass microfiber (GMF)
Aqueous/organic samples in 3 to 10 pH range	Nylon (NYL)
General filtration media/solvent based samples	Polypropylene (PP)
Chemically aggressive solutions	Polytetrafluoroethylene (PTFE)
Biological samples requiring low protein binding media	Regenerated cellulose (RC) or polyethersulfone (PES)
Aqueous/organic solvents, low nonspecific protein binding media	Polyvinylidene difluoride (PVDF) or regenerated cellulose (RC)
Aqueous/organic solvents, high flow and loading capacity	Polypropylene depth filter, non-woven PP fibers

# Technical specifications

## Mini-UniPrep™ integrated syringeless filters and filter vials

Sample type	Suitable Mini-UniPrep™ media
Dimensions	Equivalent in size to 12 × 32 mm vials
Materials of construction	
Housing and cap	Polypropylene
Filter media	As specified
Septa	PTFE coated silicone rubber
Filtering capacity	0.4 mL
Nominal force needed to compress	Approximately 18 lbs/8.2 kg
Maximum operating temperature	120°F (50°C)



# Ordering information

## Mini-UniPrep™ integrated syringeless filters and filter vials

Pore size (µm)	Catalog number	Media	Quantity/pack
<b>Standard cap—translucent housing</b>			
0.2	09923101	Nylon	100
0.2	09923106	Nylon	1000
0.45	0992329	Nylon	100
0.45	0992336	Nylon	1000
0.2	09927651	PES	100
0.45	0992330	PES	100
0.45	09924587	PES	1000
0.2	09923100	PVDF	100
0.2	09923105	PVDF	1000
0.45	0992325	PVDF	100
0.45	0992332	PVDF	1000
0.2	09924401	RC	100
0.2	09924402	RC	1000
0.45	09924400	RC	100
0.45	09924403	RC	1000
0.2	09923102	PTFE	100
0.2	09923107	PTFE	1000
0.45	0992328	PTFE	100
0.45	0992335	PTFE	1000
0.2	09923104	PP	100
0.2	09923109	PP	1000
0.45	0992331	PP	100
0.45	0992338	PP	1000
0.45	0992326	DpPP	100
0.45	09924586	DpPP	1000
0.45	0992327	GMF	100
0.45	0992334	GMF	1000
<b>Accessories: multi-compressor</b>			
–	???	Mini-UniPrep™ multi-compressor 1/pack comes with one tray	
–	???	Mini-UniPrep™ multi-compressor tray 1/pack	

PES—Polyethersulfone  
 PTFE—Polytetrafluoroethylene  
 PVDF—Polyvinylidene difluoride

RC—Regenerated cellulose  
 DpPP—Polypropylene depth filter  
 GMF—Glass microfiber

PP—Polypropylene

Pore size (µm)	Catalog number	Media	Quantity/pack
<b>Slit septum cap, translucent housing</b>			
0.2	09923111	Nylon	100
0.2	09940054	Nylon	1000
0.45	09923118	Nylon	100
0.2	09923113	PES	100
0.2	09923125	PES	1000
0.45	09940053	PES	100
0.2	09923110	PVDF	100
0.2	09923122	PVDF	1000
0.45	09924588	PVDF	100
0.45	09923127	PVDF	1000
0.2	09923112	PTFE	100
0.2	09923124	PTFE	1000
0.45	09923119	PTFE	100
0.45	09923131	PTFE	1000
0.2	09923114	PP	100
0.2	09923126	PP	1000
0.45	09923121	PP	100
0.45	09923133	PP	1000
0.45	09923116	DpPP	100
0.45	09923128	DpPP	1000
0.45	09923117	GMF	100
0.45	09923129	GMF	1000
<b>Amber housing (for light sensitive samples), standard cap</b>			
0.2	09927815	Nylon	100
0.45	09924585	Nylon	100
0.2	09927632	PES	100
0.2	09923248	PVDF	100
0.45	09940052	PVDF	100
0.2	09924584	PTFE	100
0.45	09923256	PTFE	100
0.2	09923252	PP	100
0.45	09923258	PP	100
0.45	09923254	DpPP	100
0.45	09927631	GMF	100
<b>Amber housing (for light sensitive samples), slit septum cap</b>			
0.45	09800990	Nylon	100



# Whatman™ Mini-UniPrep™ G2 integrated syringeless filters and glass vials

The Mini-UniPrep™ G2 integrated syringeless filters include an integral borosilicate glass vial housed within the plunger and a borosilicate glass chamber for holding the unfiltered liquid. It offers the same great Mini-UniPrep™ performance while minimizing the risk of extractable compounds from a plastic housing that might otherwise leach into your sample.

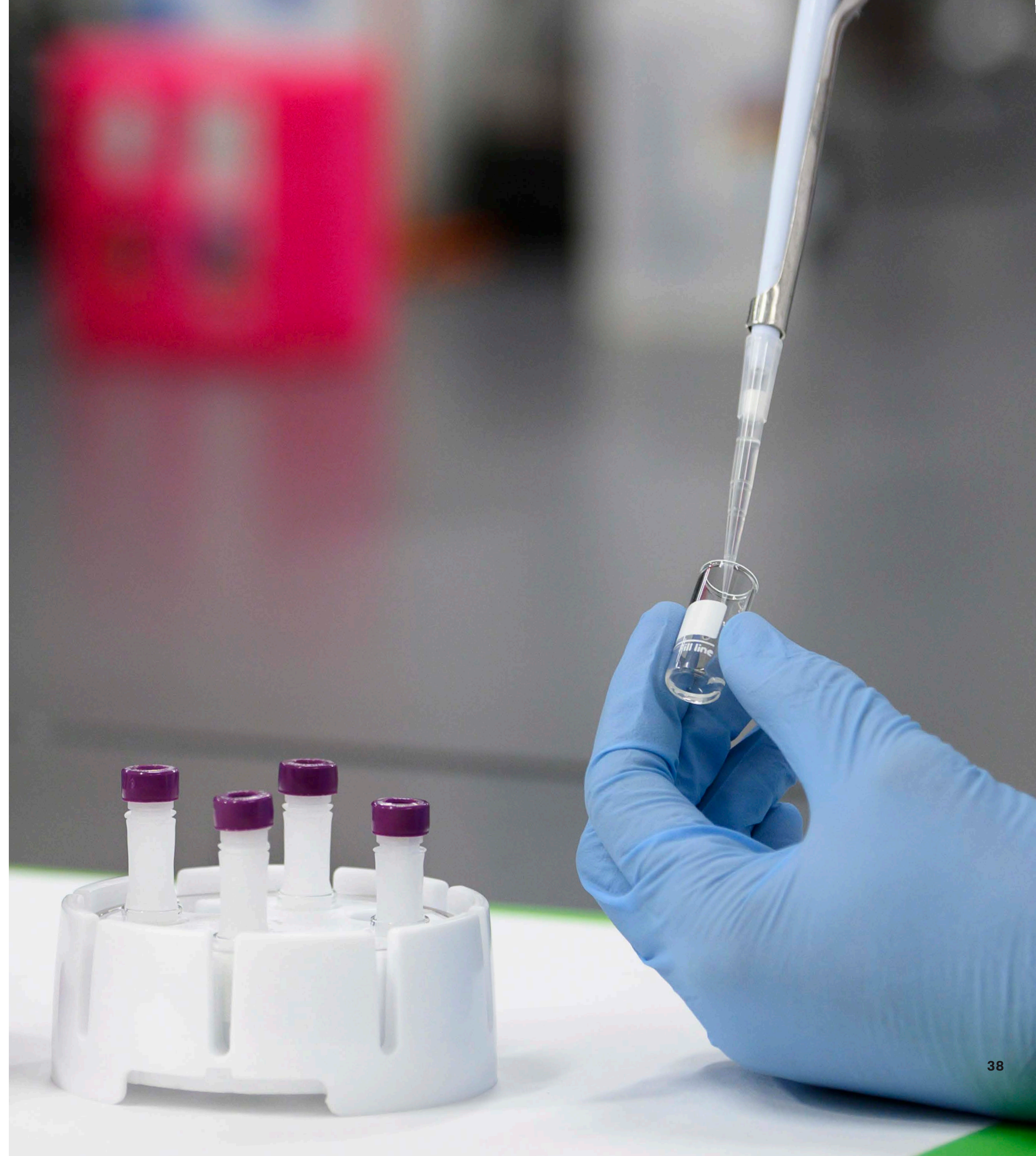
## Technical specifications

### Mini-UniPrep™ G2 integrated syringeless filters and glass vials

Dimensions	Once compressed, equivalent in size to 12 mm × 32 mm vial
Materials of construction	Chamber: Borosilicate glass Polypropylene (PP) Polytetrafluoroethylene (PTFE) Regenerated cellulose (RC) or polyethersulfone (PES) Polyvinylidene difluoride (PVDF) or regenerated cellulose (RC) Polypropylene depth filter, non-woven PP fibers
Maximum operating temp.	50°C (122°F)
Filtration capacity	Chamber (unfiltered sample): 500 µL Inner storage vial (filtered sample): 330 µL Recommended minimum filtering volume: 220 µL placed in the chamber to obtain 50 µL in inner storage vial
Nominal force needed to compress	Approx. 11.3 kg (25 lbs)
Autosampler compatibility	Any autosampler that accommodates standard 12 mm × 32 mm profile vials
Autosampler needle height adjustment	5 mm from bottom of Mini-UniPrep™ G2.

## Liquid storage capacity

Volume (µL)	Height of liquid in inner glass reservoir (mm)
50	4.3
100	7.0
150	10.3
200	12.4
250	15.4
300	18.4
350	21.4
410 (max.)	25.0





# Ordering information

## Mini-UniPrep™ G2 integrated syringeless filters and glass vials

Pore size (µm)	Membrane	Housing	Cap	Catalog number, 100 pack	Catalog number, 1000 pack	Catalog number, starter pack*
0.2	PTFE	Translucent	Normal	09924455	09940013	09924456
0.2	PTFE	Translucent	Slit septum	09924522	09924514	09924468
0.2	PTFE	Amber	Normal	09924518	–	09940004
0.45	PTFE	Translucent	Normal	09924457	09924527	09924458
0.45	PTFE	Translucent	Slit septum	09924526	09940050	09940023
0.2	PVDF	Translucent	Normal	09924459	09940011	09940005
0.2	PVDF	Translucent	Slit septum	09924520	09940047	09940019
0.2	PVDF	Amber	Normal	09924517	–	09940003
0.45	PVDF	Translucent	Normal	09924461	09940016	09940010
0.45	PVDF	Translucent	Slit septum	09924524	09940049	09940021
0.2	RC	Translucent	Normal	09940008	09940015	09940009
0.45	RC	Translucent	Normal	09924494	09940018	09924495
0.2	Nylon	Translucent	Normal	09924519	09940012	09924463
0.2	Nylon	Translucent	Slit septum	09924496	09940048	09924509
0.2	PP	Translucent	Normal	09940006	09940014	09940007
0.2	PP	Translucent	Slit septum	09940020	–	09924510
0.45	Glass fiber	Translucent	Normal	09924493	09940017	09924500
0.45	Glass fiber	Translucent	Slit septum	09924497	–	09940022
<b>Hand compressor</b>						
Mini-UniPrep™ G2 hand compressor 1/pack						09924490
<b>Multi-compressor</b>						
Mini-UniPrep™ G2 multi-compressor 1/pack, comes with one tray						09924491
Mini-UniPrep™ G2 multi-compressor tray 1/pack						09924492

\* Starter pack includes 100 filters with hand compressor

PTFE—Polytetrafluoroethylene  
 PVDF—Polyvinylidene difluoride  
 RC—Regenerated cellulose  
 PP—Polypropylene

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# Advantage syringe filters

# Advantage syringe filters

## Whatman™ Uniflo™ syringe filters

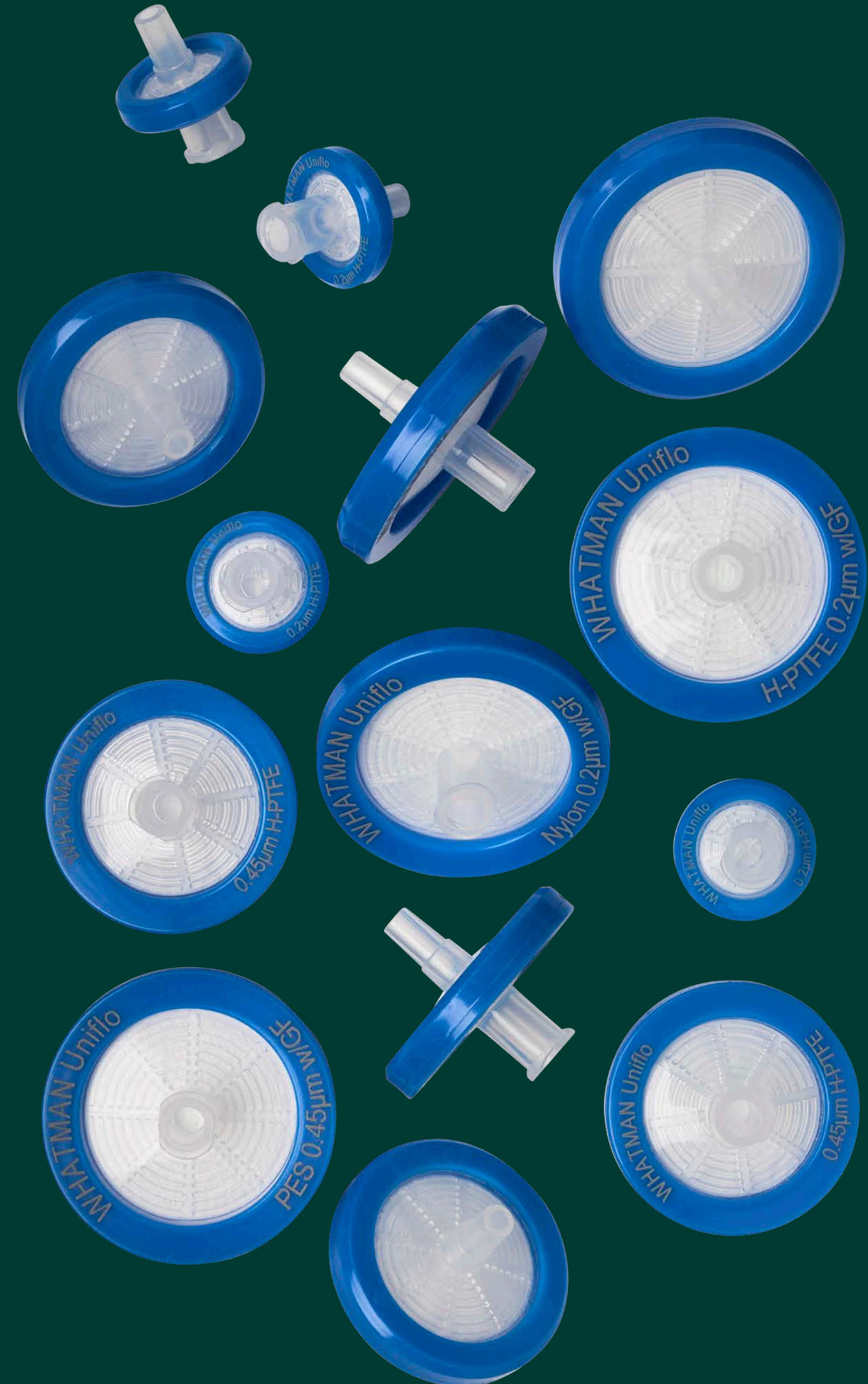
Reliable quality, economical portfolio for basic applications.

- Choice of filter sizes: 13, 25 or 30 mm
- Available in 6 membrane types
- Laser etched printing on the filter for easy identification

## Technical specifications

### Whatman™ Uniflo™ syringe filters

	Whatman™ Uniflo™ 13 mm syringe filters	Whatman™ Uniflo™ 25 mm syringe filters	Whatman™ Uniflo™ 30 mm w/GF pre-filter syringe filter
Dimensions	19.6 mm × 16.9 mm	24.5 mm × 29.2 mm	24.5 mm × 24.5 mm
Filtration area	0.88 cm <sup>2</sup>	3.45 cm <sup>2</sup>	4.98 cm <sup>2</sup>
Operation pressure	65.2 psi	65.2 psi	67.5 psi
Housing	Polypropylene	Polypropylene	Polypropylene
Volume hold up	≤ 50 µL after air purge	≤ 100 µL after air purge	≤ 200 µL after air purge
Flow direction	Flow should enter from inlet	Flow should enter from inlet	Flow should enter from inlet
Inlet connectors	Female Luer Lock	Female Luer Lock	Female Luer Lock
Outlet connectors	Male slip Luer	Male slip Luer	Male slip Luer
Sterilization	Autoclave at 121°C at 15 psi for 20 minutes	Autoclave at 121°C at 15 psi for 20 minutes	Autoclave at 121°C at 15 psi for 20 minutes
Biosafe	Polymer grade and membrane types meet the USP test requirements (for Class VI Plastics)	Polymer grade and membrane types meet the USP test requirements (for Class VI Plastics)	Polymer grade and membrane types meet the USP test requirements (for Class VI Plastics)
Pre-filtration media	N/A	N/A	100% borosilicate glass





# Ordering information

## Whatman™ Uniflo™ syringe filters

### Non-sterile, 13 mm

Membrane <sup>†</sup>	Nylon	PES	PTFE	Quantity
<b>Pore size (µm)</b>				
0.2	09928024	09928032	09928028	500/pack
0.45	09928025	09928033		500/pack

### Non-sterile, 25 mm

Membrane <sup>†</sup>	Nylon	PES	PTFE	PVDF	H-PTFE	Quantity
<b>Pore size (µm)</b>						
0.2	09928026	09928034	09928030	09928022	09920085	500/pack
0.45	09928027	09928035	09928031	09928023	09920087	500/pack

### Non-sterile, 30 mm with GF\* prefilter

Membrane <sup>†</sup>	Nylon	PES	PTFE	PVDF	H-PTFE	Quantity
<b>Pore size (µm)</b>						
0.2	09928180	09928168	09928176	09928172	09928184	500/pack
0.45	09928181	09928169	09928177	09928173	09928185	500/pack

\* GF = glass fiber

<sup>†</sup> PES = Polyethersulfone; PTFE = Polytetrafluoroethylene; PVDF = Polyvinylidene difluoride; H-PTFE = Hydrophilic polytetrafluoroethylene

<sup>‡</sup> For a full list of products visit [cytiva.com](http://cytiva.com)

### Sterile, 13 mm

### Non-sterile, 13 mm

Membrane*	PES	PES	PVDF	Quantity
<b>Pore size (µm)</b>				
0.2	09928066	-	-	100/pack
0.45	09928067	-	-	100/pack
0.2	-	09928062	09928060	45/pack
0.45	-	09928063	09928061	45/pack

\* PES = Polyethersulfone; PVDF = Polyvinylidene difluoride



For full list of products visit

[cytivalifesciences.com/shop/whatman-uniflo-syringe-filters-p-05975](http://cytivalifesciences.com/shop/whatman-uniflo-syringe-filters-p-05975)

8

# Filters for automated systems

# Filters for automated systems

## Whatman™ Roby for robotic systems

Cytiva's Roby syringe filters for robotic systems were developed specifically for automated sample filtration and are available with various membranes. For difficult-to-filter samples, Roby syringe filters are also available with an integral glass fiber prefilter.

The filter housing is made from mechanically stable polypropylene. The external geometry of the filter housing ensures simple and smooth filter transport from the storage turntable to the filtration site and easy filter changing.

### Features and benefits

- Optimized for automatic dissolution test systems
- Mechanically stable polypropylene
- Easy filter changing
- Ensures simple and smooth filter transport





# Roby Filter Validation Kit

The Roby Filter Validation Kit includes step-by-step instructions for essential selection tests. Instructions include all important properties in an at-a-glance format.

## Features

- **Five types of filters:** five tubes each with 25 filters
- Filter validation protocol with filter selection aid



## Ordering information

### Roby syringe filters for automation

Diameter (mm)	Pore size (µm)	Description	Catalog number	Media/housing	Connection in/out	Color code	Quantity/ pack
25	0.45	Roby NL	09302132	NYL/PP	FLL/ML	Yellow	200 <sup>1</sup>
25	0.45	Roby NL	09302133	NYL/PP	FLL/ML	Yellow	1000
25	0.45	Roby RC	09302137	RC/PP	FLL/ML	Translucent brown	1000
25	0.45	Roby RC-GF92	09302138	RC-GF/PP	FLL/ML	Brown	200*
25	0.45	Roby RC-GF92	09302100	RC-GF/PP	FLL/ML	Brown	1000
25	0.7	Roby GF55	09302130	GF/PP	FLL/ML	Natural	200*
25	0.7	Roby GF55	09302131	GF/PP	FLL/ML	Natural	1000
25	1.0	Roby GF92	09302128	GF/PP	FLL/ML	Natural	200*
25	1.0	Roby GF92	09302129	GF/PP	FLL/ML	Natural	1000
25	–	Filter Validation Kit <sup>†</sup>	09302141	–	FLL/ML	–	1

\* 8 tubes with 25 pieces each

<sup>†</sup> Filter Validation Kit includes: Roby NL; Roby RC; Roby RC-GF92; Roby GF55; Roby GF92

ML—Male Luer

FLL—Female Luer lock

NYL—Nylon

PP—Polypropylene

RC—Regenerated cellulose

## Whatman™ 850-DS Channel Filter Plate

The 850-DS 8-Channel Filter Plate is a disposable plate for use in the Agilent™ 850-DS Dissolution Sampling Station, used for automated sample preparation in dissolution testing.

### Automated dissolution sample preparation for increased productivity

The filter plates are exclusively designed for use with the optional filter module on the Agilent™ 850-DS Dissolution Sampling Station to simplify filter replacement between timepoints. Reliable alignment of the liquid path increases productivity in two ways: First, by reducing the risk of jamming, and second, by reducing leaks that may occur with manual sampling or other dissolution sample preparation systems.

Save time and eliminate errors associated with manual sampling. Use 850-DS 8-channel filter plates in your Agilent™ 850-DS Dissolution Sampling Station.

- **Automated processing:** up to 8 samples simultaneously
- **Readily available:** in a wide range of pore sizes and materials

850-DS 8-channel filter plates have been developed in conjunction with Agilent™. They are available in a wide range of pore sizes and materials.

## Ordering information

### 850-DS 8-Channel Filter Plate

Pore size (µm)	Media	Catalog number	Quantity/pack
0.45	PTFE	09929000	50
0.45	Nylon	09929001	50
0.45	PES	09929002	50
0.7	GMF	09929003	50
0.2	PTFE	09924000	50
0.2	Nylon	09924001	50
0.2	PES	09924002	50
0.2	PVDF	09929004	50
0.45	PVDF	09929005	50
1.0	GMF	09928160	50





9

# General laboratory accessories

# General laboratory accessories

In addition to the filtration consumable range, we provide a comprehensive range of accessories for routine work in your laboratory.

Whatman™ pH indicator and test papers combine ease of use with exceptional accuracy and consistency. The convenience of using indicator papers for the rapid determination of pH values has led to many applications in laboratories and industry.

Lenses and other optical surfaces made from glass, quartz or plastic can be easily scratched if you do not clean them with a very soft surface. High-quality Whatman™ lens cleaning tissue provides the solution. The tissue is chemically pure and free from silicones and other additives. Most importantly, it can be relied on to safely remove surface moisture and grease

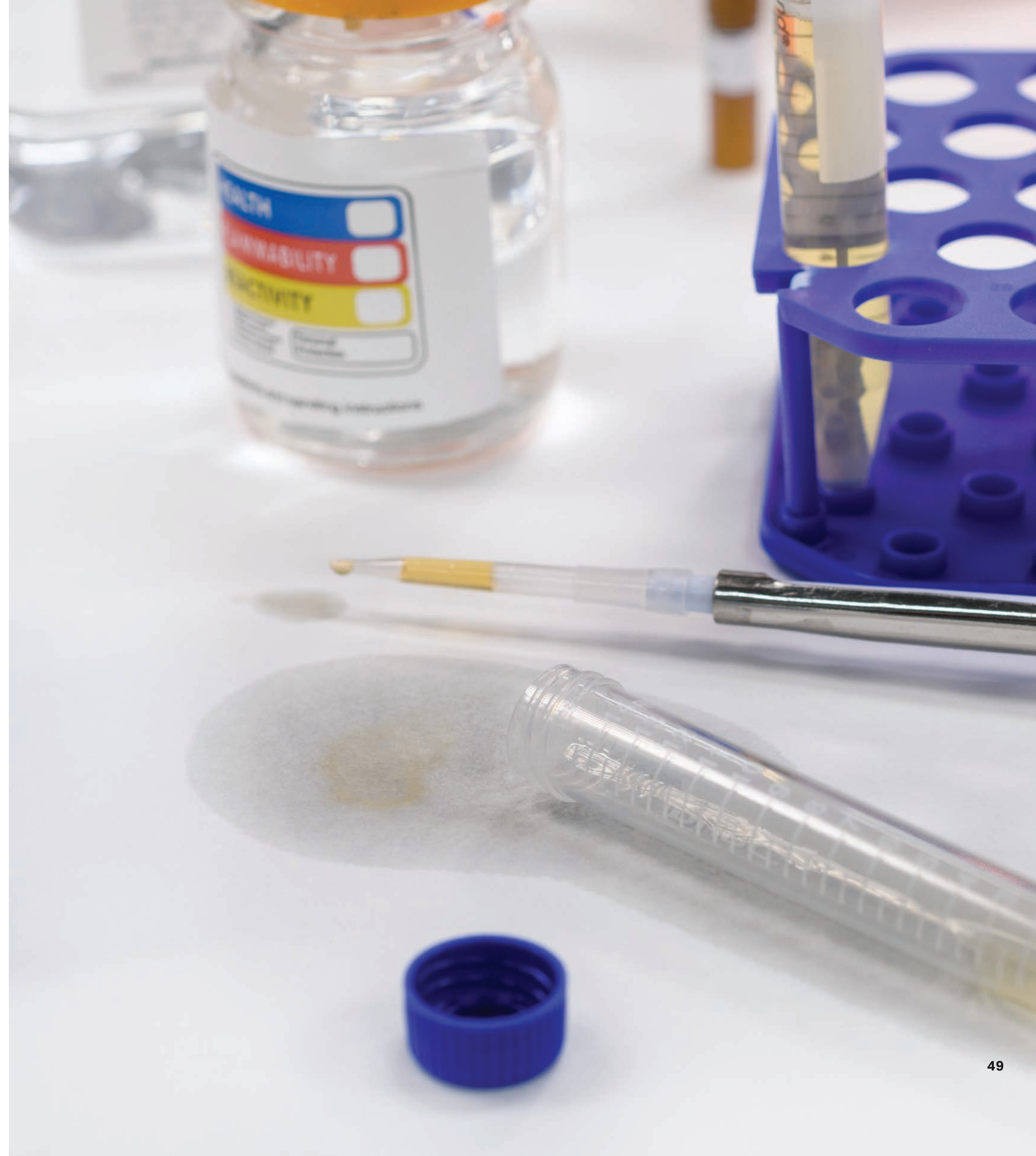




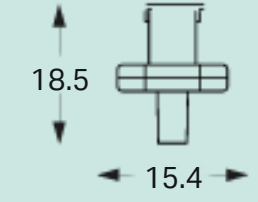
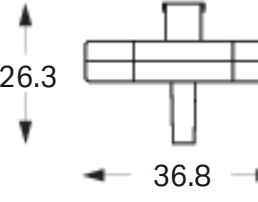
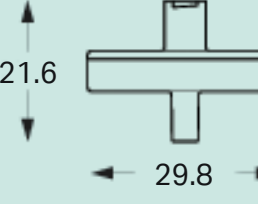
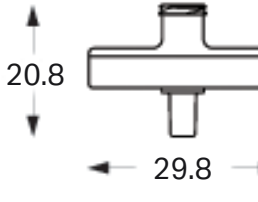
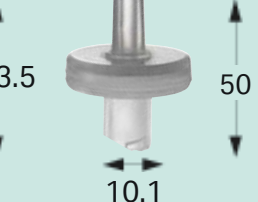
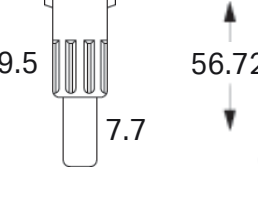
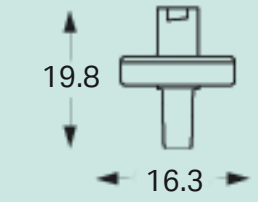
# Ordering information

## General laboratory accessories

Description	Product name	Dimension	Quantity	Product code
<b>Phase separation paper</b> • Separatory funnel replacement: Automatic cut-off • Ease of use: no special training required	1PS Phase separator paper	Diam. 125 mm	100/pack	0987454
		Diam. 150 mm	100/pack	0987456
<b>Optical lens cleaning tissue</b> • Soft tissue for removing surface moisture and grease from lenses and other optical surfaces	Grade 105	100 × 150 mm	25 wallets of 25 sheets	08777100
		200 × 300 mm	100/pack	09800973
<b>Benchkote™ bench protection papers</b> • High-quality, smooth, absorbent Whatman™ paper • Quickly absorbs liquid spills and protect the working surface • Benchkote™ Plus is thicker and more absorbent	Benchkote™	460 × 570 mm	50/pack	12007180
		460 mm × 50 m	1/pack	12007182A
	Benchkote™ Plus	500 × 600 mm	50/pack	12007183A
		600 mm × 50 m	1/pack	12007183B
<b>pH Indicator Paper</b> • Range of pH indicator and test papers for rapid results	Color Bonded, 0.0 to 14.0 range	6 × 80 mm	100 strips, 1/pack	0987617
	Standard Full Range, Reel, 1.0 to 14.0 range	7 mm × 5 m	1/pack	0987570
	Standard Narrow Range, Reel, 4.0 to 7.0 range	7 mm × 5 m	1/pack	0987572
<b>Pump protection filters</b> • Protects vacuum pump systems from aqueous aerosols. Hydrophobic PTFE membranes retain 99,99% of airborne particles > 0.1 µm	Vacu-Guard	50 mm	10/pack	0974475
<b>Filtration flask for batch filtration</b> • Consists of a 250 mL glass filtration funnel and 1000 mL flask, funnel base, top, and clamp • Good choice for use with Whatman™ filtration membranes	GV050/2 vacuum filtration unit	N/A	N/A	09927396



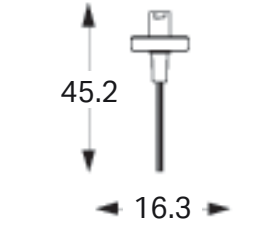
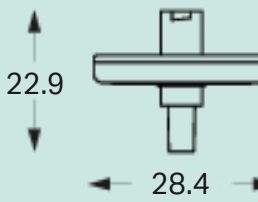
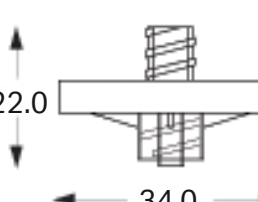
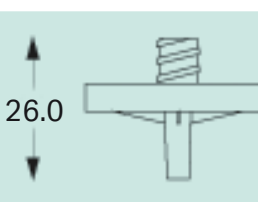
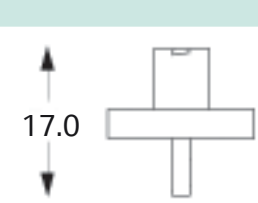
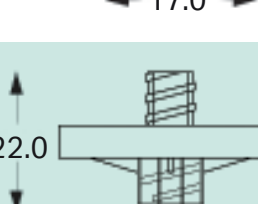
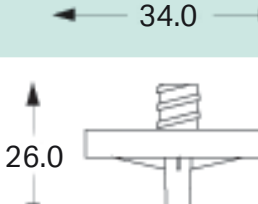
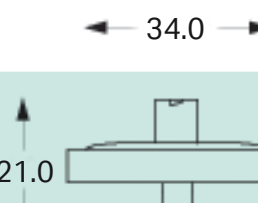
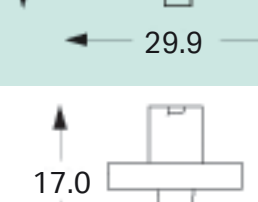
# Technical data of syringe filters

Name	Diameter (mm)	Housing material*	Max. operating pressure (psi/bar)	Effective filter area (cm <sup>2</sup> )	Hold-up volume after air purging (µL)	Inlet*	Outlet*	Dimensions (mm)
Anotop™ 10 syringe filters, Anotop™ 10 Plus syringe filters, Anotop™ 10 IC syringe filters	10	PP	100/6.9	0.78	Anotop™ 10 & 1C syringe filters: < 20 Anotop™ 10 Plus syringe filters: < 30	FLL	ML	
Anotop™ 25 syringe filters, Anotop™ 25 Plus syringe filters, Anotop™ 25 IC syringe filters	25	PP	100/6.9	4.78	Anotop™ 25 & 1C syringe filters: < 150 Anotop™ 25 Plus syringe filters: < 200	FLL	ML	
Whatman GD/X™ 13 syringe filters	13	PP	75/5.2	1.3	50 (approx)	FLL	ML	
Whatman GD/X™ 25 syringe filters, GD/XP	25	PP	75/5.2	4.6	250 (approx)	FLL	ML	
Puradisc™ 4 with and without tip (all membranes apart from PVDF)	4	PP	75/5.2	0.2	< 10	FLL	ML	
Puradisc™ 4 with and without tip (PVDF membrane only)	4	PP	75/5.2	0.2	< 10	FLL	ML Tube Tip	
Puradisc™ 13 syringe filters	13	PP	75/5.2	1.3	< 25	FLL	ML	

\* FLL = Female Luer lock; ML = Male Luer; MLL = Male Luer lock; PP = Polypropylene



Continued from previous page.

Name	Diameter (mm)	Housing material*	Max. operating pressure (psi/bar)	Effective filter area (cm <sup>2</sup> )	Hold-up volume after air purging (µL)	Inlet*	Outlet*	Dimensions (mm)
Puradisc™ 13 with Tube Tip	13	PP	75/5.2	1.3	< 25	FLL	Tube Tip	
Puradisc™ 25 syringe filters	25	PP	75/5.2	4.2	< 100	FLL	ML	
Puradisc™ FP syringe filters	30	PC	100/6.9	5.7	≤ 50	FLL	MLL	
Puradisc™ FP syringe filter, Aqua 30	30	PC	100/6.9	5.7	≤ 50	FLL	ML	
ReZist™ 13, SPARTAN™ 13 with Mini-Tip in-line disk filter	13	PP	100/6.9	0.75	≤ 10	FLL	Mini-Tip	
ReZist™ 30 in-line disk filter	30	PP	100/6.9	5.7	≤ 50	FLL	MLL	
ReZist™ 30 in-line disk filter, SPARTAN™ 30 HPLC syringe filter	30	PP	100/6.9	5.7	≤ 50	FLL	ML	
Roby 25	25	PP	100/6.9	4.2	≤ 50	FLL	ML	
SPARTAN™ 13 HPLC syringe filter	13	PP	100/6.9	0.75	≤ 10	FLL	ML	

\* FLL = Female Luer lock; ML = Male Luer; MLL = Male Luer lock; PP = Polypropylene

# Chemical compatibility of membranes and housings\*

Solvent	ANP	CA	CN	PC	PE	GMF	NYL	PP	DpPP	PES	H-PTFE	PTFE <sup>‡</sup>	PVDF	RC
Acetic acid, 5%	R	LR	R	R	–	R	R	R	R	R	R	R	R	R
Acetic acid, glacial	R	NR	NR	–	–	R	LR	R	R	R	R	R	R	NR
Acetone	R	NR	NR	NR	R	R	R	R	R	NR	R	R	NR	R
Acetonitrile	R	NR	NR	–	–	R	R	R	R	NR	R	R	R	R
Ammonia, 6 N	NR		NR	NR	LR	LR	R	R	R	R	R	R	LR	LR
Amyl acetate	LR	NR	NR	NR	R	R	R	R	R	LR	R	R	LR	R
Amyl alcohol	R	LR	LR	–	–	R	R	R	R	NR	R	R	R	R
Benzene <sup>†</sup>	R	R	R	NR	R	R	LR	NR	NR	R	R	R	R	R
Benzyl alcohol <sup>†</sup>	R	LR	LR	LR	R	R	LR	R	R	NR	R	R	R	R
Boric acid	R	R	R	R	R	R	LR	R	R	–	–	R	R	R
Butyl alcohol	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Butyl chloride <sup>†</sup>	–	–	–	–	–	R	NR	NR	NR	–	–	R	R	–
Carbon tetrachloride <sup>†</sup>	R	NR	R	LR	R	R	LR	NR	NR	NR	R	R	R	R
Chloroform <sup>†</sup>	R	NR	R	NR	R	R	NR	LR	LR	NR	R	R	R	R
Chlorobenzene <sup>†</sup>	R	–	LR	NR	–	R	NR	LR	–	NR	–	R	R	R
Citric acid	–	–	–	–	–	R	LR	R	–	R	–	R	R	R
Cresol	–	NR	R	–	–	R	NR	NR	NR	NR	–	R	NR	R
Cyclohexane	R	NR	NR	R	R	R	NR	NR	NR	NR	–	R	R	R
Cyclohexanone	R	NR	NR	–	–	R	NR	R	R	NR	R	R	R	R
Diethylacetamide	–	NR	NR	–	–	R	R	R	R	–	–	R	NR	R
Dimethylformamide	LR	NR	NR	–	–	R	R	R	R	NR	R	R	NR	LR
Dioxane	R	NR	NR	NR	R	R	R	R	R	LR	–	R	LR	R
DMSO	LR	NR	NR	NR	R	R	R	R	R	NR	R	R	LR	LR
Ethanol	R	R	NR	R	R	R	R	R	R	R	–	R	R	R
Ethers	R	LR	LR	R	R	R	R	NR	NR	R	R	R	LR	R

ANP = Anopore™  
 CA = Cellulose acetate  
 CN = Cellulose nitrate  
 DpPP = Polypropylene depth filter

GMF = Glass microfiber  
 NYL = Nylon; PC = Polycarbonate  
 PE = Polyester  
 PES = Polyethersulfone

PP = Polypropylene  
 H-PTFE = Hydrophilic Polytetrafluoroethylene  
 PTFE = Polytetrafluoroethylene  
 PVDF = Polyvinylidene difluoride

RC = Regenerated cellulose  
 R = Resistant  
 LR = Limited Resistance  
 NR = Not Recommended

<sup>†</sup> Short Term Resistance of Housing.

<sup>‡</sup> Membrane may need pre-wetting with isopropanol/methanol if filtering a polar liquid.

The above data is to be used as a guide only. Testing prior to application is recommended.

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Solvent	ANP	CA	CN	PC	PE	GMF	NYL	PP	DpPP	PES	H-PTFE	PTFE <sup>‡</sup>	PVDF	RC
Ethyl acetate	R	NR	NR	NR	R	R	R	R	R	NR	R	R	NR	R
Ethylene glycol	R	LR	LR	R	R	R	R	R	R	R	R	R	R	R
Formaldehyde	LR	LR	R	R	R	R	R	LR	LR	R	R	R	R	LR
Freon TF	R	R	R	R	R	R	NR	NR	NR	R	–	R	R	–
Formic acid	–	LR	LR	–	–	R	NR	R	R	R	–	R	R	LR
Hexane	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Hydrochloric acid, conc.	NR	NR	NR	NR	NR	R	NR	LR	LR	R	R	R	R	NR
Hydrofluoric acid	–	NR	NR	–	–	NR	NR	LR	LR	–	–	R	R	NR
Isobutyl alcohol	R	LR	LR	R	R	R	R	R	R	–	R	R	R	R
Isopropyl alcohol	R	R	LR	–	–	R	R	R	R	–	R	R	R	R
Methanol	R	R	NR	R	R	R	R	R	R	R	R	R	R	R
Methyl ethyl ketone	R	LR	NR	NR	R	R	R	R	R	NR	R	R	NR	R
Methylene chloride <sup>†</sup>	R	NR	LR	–	–	R	NR	LR	LR	NR	R	R	R	R
Nitric acid, conc.	–	NR	NR	LR	NR	R	NR	NR	NR	NR	R	R	R	NR
Nitric acid, 6 N	–	LR	LR	–	–	R	NR	LR	LR	LR	R	R	R	LR
Nitrobenzene <sup>†</sup>	LR	NR	NR	NR	R	R	LR	R	R	NR	–	R	R	R
Pentane	R	R	R	R	R	R	R	NR	NR	R	–	R	R	R
Perchloroethylene	R	R	R	–	–	R	LR	NR	NR	NR	R	R	R	R
Phenol 0.5%	LR	LR	R	–	–	R	NR	R	R	NR	–	R	R	R
Pyridine	R	NR	NR	NR	R	R	LR	R	R	NR	R	R	NR	R
Sodium hydroxide, 6N	NR	NR	NR	NR	NR	NR	LR	R	R	R	R	R	NR	NR
Sulfuric acid, conc.	NR	NR	NR	NR	NR	R	NR	NR	NR	NR	R	R	NR	NR
Tetrahydrofuran	R	NR	NR	–	–	R	R	LR	LR	NR	R	R	R	R
Toluene <sup>†</sup>	R	LR	R	NR	R	R	LR	LR	LR	NR	R	R	R	R
Trichloroethane <sup>†</sup>	R	NR	LR	NR	R	R	LR	LR	LR	NR	R	R	R	R
Trichloroethylene <sup>†</sup>	R	–	R	–	–	R	NR	LR	LR	NR	R	R	R	R
Water	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Xylene <sup>†</sup>	R	R	R	–	–	R	LR	LR	LR	LR	R	R	R	R

ANP = Anopore™  
 CA = Cellulose acetate  
 CN = Cellulose nitrate  
 DpPP = Polypropylene depth filter

GMF = Glass microfiber  
 NYL = Nylon; PC = Polycarbonate  
 PE = Polyester  
 PES = Polyethersulfone

PP = Polypropylene  
 H-PTFE = Hydrophilic Polytetrafluoroethylene  
 PTFE = Polytetrafluoroethylene  
 PVDF = Polyvinylidene difluoride

RC = Regenerated cellulose  
 R = Resistant  
 LR = Limited Resistance  
 NR = Not Recommended

<sup>†</sup> Short Term Resistance of Housing.

<sup>‡</sup> Membrane may need pre-wetting with isopropanol/methanol if filtering a polar liquid.

The above data is to be used as a guide only. Testing prior to application is recommended.



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