# Filtration for HPLC sample preparation

Efficient sample filtration for HPLC, helping labs save time.


cytiva

# 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.

# Contents

# Importance of sample prep prior to HPLC

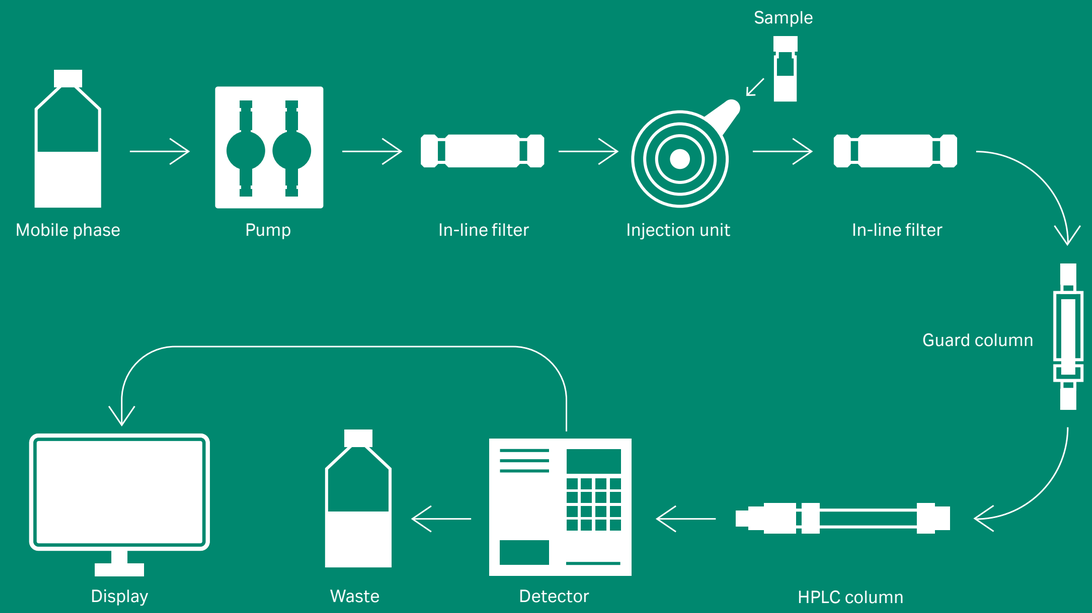
HPLC can be demanding in both high pressure in the workflow and results. Accurate results depend on various steps throughout the process. An analytical lab may process hundreds of samples per week, each requiring fast analysis generating reliable results. Therefore, the analyst needs to find and maintain 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† |
| **High performance**<br>The workhorse of the lab, these syringe filters deliver premium quality with efficiency to meet most analytical needs, from basic to advanced. | **Anotop™ syringe filters** | | | | | | | ✓ | | | | | |
| | **Puradisc™ syringe filters** | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Difficult filtration**<br>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. | **Anotop™ Plus syringe filters** | | | | | | | ✓ | | | | | |
| | **Whatman GD/X™ syringe filters** | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ |
| | **GD/XP** | | | ✓ | | ✓ | ✓ | | | | ✓ | ✓ | ✓ |
| **Automated systems**<br>These sturdy syringe filters are compatible with most high throughput and/or dissolution systems. | **Roby** | | | | ✓ | ✓ | | | ✓ | | | | |
| | **850-DS** | | | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ |
| **Application specific**<br>Dedicated uses: HPLC, IC and LC with certification; bioethanol and protein purification production; environmental samples prior to COD/DOC analysis. | **Anotop™ IC syringe filters** | | | | | | | ✓ | | | | | |
| | **Anotop™ LC syringe filters** | | | | | | | ✓ | | | | | |
| | **Puradisc™ Aqua syringe filters** | | ✓ | | | | | | | | | | |
| | **SPARTAN™ Certified syringe filters** | | | | | | | | ✓ | | | | |
| | **Protein Prep** | | | | | | | | ✓ | | | | |
| **All-in-One**<br>Integrated devices include the collection receptacle to save time, reduce waste and reduce sample handling | **Autovial™ syringeless filters** | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | ✓ |
| | **UniPrep™ syringeless filters** | | | | ✓ | ✓ | ✓ | | | | | | ✓ |
| | **Mini-UniPrep™ syringeless filters** | | | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ |
| | **Mini-UniPrep™ G2 syringeless filters** | | | | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ |
| **Advantage**<br>Reliable quality, economical portfolio for basic applications. | **Whatman™ Uniflo™ syringe filters** | | | ✓ | ✓ | ✓ | ✓ | | | ✓ | | | ✓ |
| **Mobile phase**<br>Inline filter devices for degassing solutions used as the carrier phase in analytical equipment. | **Aqueous IFD** | | | | | ✓ | | | | | | | |
| | **Solvent IFD** | | | | | | | | | | | ✓ | |

*ANP = Anopore™*
*CA = Cellulose acetate*
*CN = Cellulose nitrate*
*DpPP = Polypropylene depth filter*
*GMF = Glass microfiber*
*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*

# 1

# 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 $cm^2$ | 16 $cm^2$ |

* *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 | 6726-5002 | Aqueous IFD* | Nylon | 10 |
| 50 | 0.2 | 6726-5002A | Aqueous IFD† | Nylon | 10 |
| 50 | 0.2 | 6725-5002 | Solvent IFD[1] | PP | 10 |
| 50 | 0.2 | 6725-5002A | Solvent IFD[2] | 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 | - | - | - | 6809-5523 | - | - | 50 |
| 0.2 | 10410312 | 7402-004 | 7582-004 | - | 10414012 | 10404112 | 100 |
| 0.45 | 10410212 | 7404-004 | 7585-004* | - | 10414112 | 10404012 | 100 |

* *0.5 µm*

# 2
# 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 |
|---|---|---|---|---|---|
| 1960-002 | Filter funnel | 24-25 mm | 25 mL | #5 Stopper | Integrated glass frit |
| 1960-052 | Filter funnel | 24-25 mm | 25 mL | #5 Stopper | Stainless steel with PTFE gasket |
| 1960-032 | Filter funnel | 24-25 mm | 50 mL | #5 Stopper | Integrated glass frit |
| 1960-004 | Filter funnel | 47-50 mm | 300 mL | #8 stopper | Integrated glass frit |
| 1960-054 | Filter funnel | 47-50 mm | 300 mL | #8 stopper | Stainless steel with PTFE gasket |
| 1961-054 | Filter funnel | – | 300 mL | – | – |
| 1960-009 | Filter funnel | 90 mm | 1000 mL | #8 stopper | Integrated glass frit |
| 10441000 | Filter funnel; GV 025/0 | 24-25 mm | 60 mL | – | Glass frit with PTFE centering ring |
| 10441200 | Filtration assembly | 24-25 mm | 60 mL | 500 mL | Glass frit with PTFE centering ring |
| 10442000 | Filter funnel; GV 050/0 | 47-50 mm | 250 mL | – | Glass frit with PTFE centering ring |
| 10442100* | Filter funnel; GV 050/1 | 47-50 mm | 250 mL | – | PTFE coated sieve with PTFE centering ring |
| 10442200* | Filtration assembly | 47-50 mm | 250 mL | 1 L | Glass frit with PTFE centering ring |
| 10442300* | Filtration assembly | 47-50 mm | 250 mL | 1 L | PTFE coated sieve with PTFE centering ring |
| 10443000 | Filter funnel; GV100/0 | 100 mm | 500 mL | – | Glass frit with PTFE centering ring |
| 10443100 | Filter funnel; GV 100/1 | 100 mm | 500 mL | – | PTFE coated sieve with PTFE centering ring |

* *Supplied with silicone cap with air inlet*

3

# 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 $cm^2$ | 1.3 $cm^2$ | 4.2 $cm^2$ | 5.7 $cm^2$ |
| 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 |
| Sterlization | 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

| | Catalog number | | | |
|---|---|---|---|---|
| Pore size (µm) | Nylon | PVDF | PTFE | Quantity/pack |
| **Nonsterile with tube tip** | | | | |
| 0.2 | – | 6777-0402 | – | 50 |
| 0.45 | – | 6777-0404 | – | 50 |
| **Sterile without tube tip** | | | | |
| 0.2 | 6786-0402 | 6791-0402 | – | 50 |
| **Nonsterile without tube tip** | | | | |
| 0.2 | 6789-0402 | 6779-0402 | 6784-0402 | 100 |
| 0.2 | 6790-0402 | 6792-0402 | 6783-0402 | 500 |
| 0.45 | 6789-0404 | 6779-0404 | 6784-0404 | 100 |
| 0.45 | 6790-0404 | 6792-0404 | 6783-0404 | 500 |

*PTFE—Polytetrafluoroethylene*
*PVDF—Polyvinylidene difluoride*

# Ordering information

## Puradisc™ syringe filters 13 mm (nonsterile)

| | Catalog number | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Pore size (µm)** | **CA** | **Nylon** | **PES** | **PVDF** | **PP** | **PTFE** | **GMF** | **RC** | **H-PTFE** | **Quantity/pack** |
| **With tube tip** | | | | | | | | | | |
| 0.2 | – | – | – | 6777-1302 | – | 6775-1302 | – | – | – | 50 |
| 0.2 | – | – | – | – | – | 10463703 | – | – | – | 100 |
| 0.45 | – | – | – | 6777-1304 | – | 6775-1304 | | – | – | 50 |
| 0.45 | – | – | – | – | – | 10463713 | – | – | – | 100 |
| **Without tube tip** | | | | | | | | | | |
| 0.1 | – | 6789-1301 | – | – | – | 6784-1301 | – | - | - | 100 |
| 0.2 | – | 6789-1302 | 6782-1302 | 6779-1302 | 6788-1302 | 6784-1302 | – | 6756-1302 | 6772-1302 | 100 |
| 0.2 | – | 6790-1302 | – | 6792-1302 | 6785-1302 | 6783-1302 | – | 6757-1302 | 6773-1302 | 500 |
| 0.2 | – | 6768-1302 | – | 6765-1302 | – | 6766-1302 | – | 6758-1302 | 6774-1302 | 2000 |
| 0.45 | 6771-1304 | 6789-1304 | 6782-1304 | 6779-1304 | 6788-1304 | 6784-1304 | – | 6756-1304 | 6772-1304 | 100 |
| 0.45 | – | 6790-1304 | 6781-1304 | 6792-1304 | 6785-1304 | 6783-1304 | 6818-1304 | 6757-1304 | 6773-1304 | 500 |
| 0.45 | – | 6768-1304 | – | 6765-1304 | – | 6766-1304 | – | 6758-1304 | 6774-1304 | 2000 |
| 1.0 | – | – | – | – | – | 6784-1310 | – | - | - | 100 |
| 5.0 | – | – | – | – | – | 6784-1350 | | - | - | 100 |
| GF/F 0.7* | – | – | – | – | – | – | 6825-1307 | - | - | 100 |
| GF/B 1.0* | – | – | – | – | – | – | 6821-1310 | - | - | 100 |
| GF/C™ 1.2* | – | – | – | – | – | – | 6822-1312 | - | - | 100 |
| GF/A 1.6* | – | – | – | – | – | – | 6820-1316 | - | - | 100 |
| GF/A 1.6 | – | – | – | | – | – | 6806-1316 | - | - | 500 |
| GF/D 2.7* | – | – | – | – | – | – | 6823-1327 | - | - | 100 |
| 934-AH™ 1.5* | – | – | – | – | – | – | 6827-1315 | - | - | 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)

| | Catalog number | | | |
|---|---|---|---|---|
| **Pore size (µm)** | **PVDF** | **PES** | **RC** | **Quantity/pack** |
| **Without tube tip** | | | | |
| 0.2 | 6791-1302 | 6780-1302 | 10462940 | 50 |
| 0.45 | 6791-1304 | 6780-1304 | – | 50 |
| **With tube tip** | | | | |
| 0.2 | 6778-1302 | – | 10462945 | 50 |

# Ordering information

## Puradisc™ syringe filters 25 mm

| | Catalog number | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Pore size (µm)** | **Nylon** | **PES** | **PVDF** | **PP** | **PTFE** | **H-PTFE** | **GMF** | **DpPP** | **RC** | **Quantity/pack** |
| **Sterile** | | | | | | | | | | |
| 0.2 | – | 6780-2502 | – | – | – | – | – | – | – | 50 |
| 0.2 | – | 6794-2512 | – | – | – | – | – | – | – | 1000 |
| 0.45 | – | 6780-2504 | – | – | – | – | – | – | – | 50 |
| 0.45 | – | 6794-2514 | – | – | – | – | – | – | – | 1000 |
| 1.0 | – | 6780-2510 | – | – | – | – | – | – | – | 50 |
| **Nonsterile** | | | | | | | | | | |
| 0.1 | – | – | – | – | 6784-2501 | – | – | – | – | 50 |
| 0.1 | – | – | – | – | 6798-2501 | – | – | – | – | 1000 |
| 0.2 | 6750-2502 | – | 6746-2502 | 6786-2502 | 6784-2502 | 6772-2502 | – | – | 6756-2502 | 50 |
| 0.2 | 6751-2502 | 6781-2502 | 6747-2502 | 6788-2502 | 6785-2502 | 6773-2502 | – | – | 6757-2502 | 200 |
| 0.2 | 6753-2502 | 6794-2502 | – | 6790-2502 | 6798-2502 | 6774-2502 | – | – | 6758-2502 | 1000 |
| 0.45 | 6750-2504 | – | 6746-2504 | – | 6784-2504 | 6772-2504 | – | 6786-2504 | 6756-2504 | 50 |
| 0.45 | 6751-2504 | 6781-2504 | 6747-2504 | – | 6785-2504 | 6773-2504 | – | 6788-2504 | 6757-2504 | 200 |
| 0.45 | 6752-2504 | – | – | – | – | – | – | – | – | 500 |
| 0.45 | 6753-2504 | 6794-2504 | 6749-2504 | – | 6798-2504 | 6774-2504 | – | 6790-2504 | 6758-2504 | 1000 |
| 0.7 GF/F* | – | – | – | – | – | – | 6825-2517 | – | – | 50 |
| 0.7 GF/F* | – | – | – | – | – | – | 6825-2527 | – | – | 200 |
| 0.7 GF/F* | – | – | – | – | – | – | 6787-2520 | – | – | 1000 |
| 1.0 | 6750-2510 | – | – | – | 6784-2510 | – | – | – | – | 50 |
| 1.0 | 6751-2510 | 6781-2510 | – | – | – | – | – | – | – | 200 |
| 1.0 | 6753-2510 | 6794-2510 | – | – | 6798-2510 | – | – | – | – | 1000 |
| 1.0 GD 1* | – | – | – | – | – | – | 6783-2510 | – | – | 100 |
| 1.0 GD 1* | – | – | – | – | – | – | 6792-2510 | – | – | 1000 |
| 2.0 GD 2* | – | – | – | – | – | – | 6783-2520 | – | – | 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

| | Catalog number | | | | | | |
|---|---|---|---|---|---|---|---|
| **Media/housing** | **CA/PC** | **CN/ PC** | **PTFE/PP** | **PTFE/PC** | **RC/PP** | | |
| **Pore size (µm)** | | | | | | **Connection in/out** | **Quantity/pack** |
| 0.2 | 10462200* | – | 10463500* | – | – | FLL/ML | 50 |
| 0.2 | 10462701 | – | – | – | 10462960* | FLL/ML | 50 |
| 0.2 | 10462205*,† | – | – | – | – | FLL/MLL | 50 |
| 0.2 | 10462710 | – | 10463503 | – | – | FLL/ML | 100 |
| 0.2 | 10462700 | – | 10463505 | 10462300* | – | FLL/ML | 500 |
| 0.2 | 10462206 | – | – | – | – | FLL/MLL | 500 |
| 0.45 | 10462100* | – | – | – | 10462950* | FLL/ML | 50 |
| 0.45 | 10462601 | – | – | – | – | FLL/ML | 50 |
| 0.45 | 10462610 | – | 10463513 | – | – | FLL/ML | 100 |
| 0.45 | 10462600 | – | 10463515 | – | – | FLL/ML | 500 |
| 0.8 | 10462241 | – | – | – | – | FLL/ML | 50 |
| 0.8 | 10462240* | – | – | – | – | FLL/ML | 50 |
| 0.8 | 10462243 | – | – | – | – | FLL/ML | 500 |
| 1.0 | – | – | 10463523 | – | – | FLL/ML | 100 |
| 1.0 | – | – | 10463525 | – | – | FLL/ML | 500 |
| 1.2 | 10462260* | – | – | – | – | FLL/ML | 50 |
| 1.2 | 10462261 | – | – | – | – | FLL/ML | 50 |
| 1.2 | 10462263 | – | – | – | – | FLL/ML | 500 |
| 5.0 | – | 10462000* | – | – | – | FLL/ML | 50 |
| 5.0 | – | 10462520 | – | – | – | FLL/ML | 50 |
| 5.0 | – | 10462510 | 10463533* | – | – | FLL/ML | 100 |
| 5.0 | – | 10462500 | 10463535 | – | – | FLL/ML | 500 |

* *Sterile*
† *Edotoxin-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*

# 4

# 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 < 30 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 | 10463040 | RC/PP | FLL/Mini-tip | Dark brown | 100 |
| 13 | 0.2 | 10463042 | RC/PP | FLL/Mini-tip | Dark brown | 500 |
| 13 | 0.2 | 10463100 | RC/PP | FLL/ML | Dark brown | 100 |
| 13 | 0.2 | 10463102 | RC/PP | FLL/ML | Dark brown | 500 |
| 13 | 0.45 | 10463030 | RC/PP | FLL/Mini-tip | Light brown | 100 |
| 13 | 0.45 | 10463032 | RC/PP | FLL/Mini-tip | Light brown | 500 |
| 13 | 0.45 | 10463110 | RC/PP | FLL/ML | Light brown | 100 |
| 13 | 0.45 | 10463112 | RC/PP | FLL/ML | Light brown | 500 |
| 30 | 0.2 | 10463062 | RC/PP | FLL/ML | Dark brown | 500 |
| 30 | 0.45 | 10463053 | RC/PP | FLL/ML | Light brown | 50 |
| 30 | 0.45 | 10463052 | 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**

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 $cm^2$ | 0.78 $cm^2$ | 4.78 $cm^2$ | 4.78 $cm^2$ |
| 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

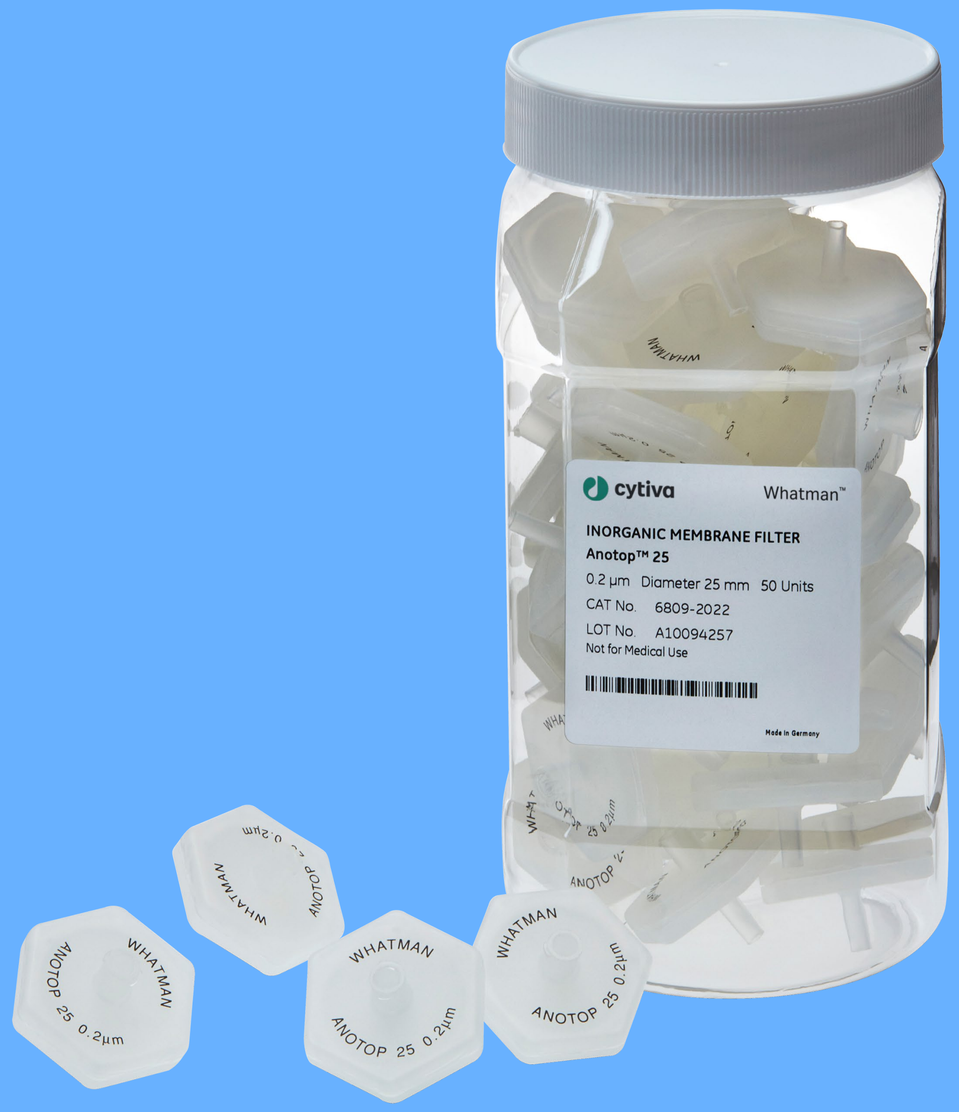
| Anion | Level (ppb) | Anion | Level (ppb) |
|---|---|---|---|
| Fluoride | < 10 | Phosphate | < 75 |
| Chloride | < 15 | Nitrite | < 30 |
| Bromide | < 20 | Nitrate | < 30 |
| Sulfate | < 30 | – | – |

*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 |
|---|---|---|---|
| **Anotop™ 10 IC syringe filters** | | | |
| 0.2 | Anopore™ syringe filters | 6809-9233 | 100 |
| 0.2 | Anopore™ syringe filters | 6809-9234 | 200 |
| **Anotop™ 25 IC syringe filters** | | | |
| 0.2 | Anopore™ syringe filters | 6809-9244 | 200 |
| **Anotop™ 10 IC blister syringe filters** | | | |
| 0.2 | Anopore™ syringe filters | 6809-9232 | 50 |
| 0.2 | Anopore™ syringe filters | 6809-9235 | 250 |
| **Anotop™ 10 LC syringe filters** | | | |
| 0.2 | Anopore™ syringe filters | 2001-0100 | 100 |
| 0.2 | Anopore™ syringe filters | 2001-0200 | 200 |
| **Anotop™ 25 LC syringe filters** | | | |
| 0.2 | Anopore™ syringe filters | 2002-5100 | 100 |
| 0.2 | Anopore™ syringe filters | 2002-5200 | 200 |



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# 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

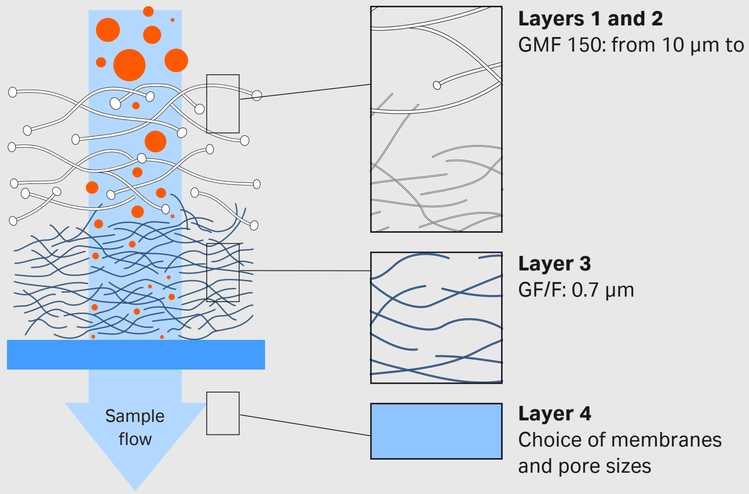
- 13 mm devices for samples up to 10 mL and 25 mm devices for samples greater than 10 mL. The volume of sample that can be filtered through each filter depends on the characteristics of the sample.
- Sterile options.
- Pigment-free polypropylene housing.
- Prefiltration stack of GMF 150 (graded density) 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.

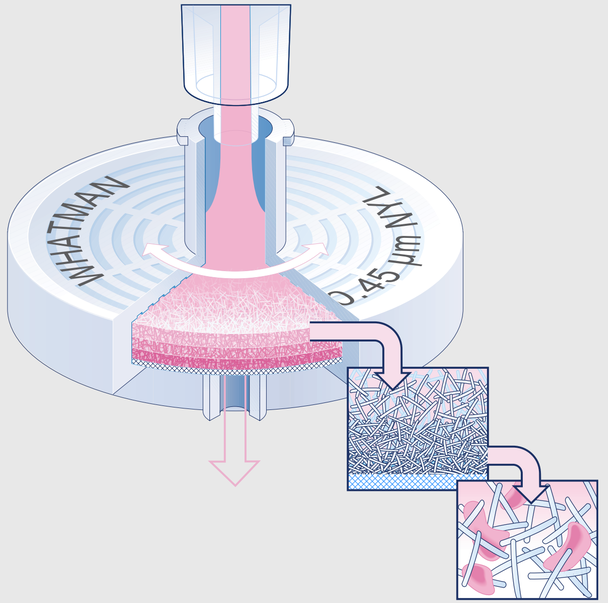
# Technical specifications

## 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 $cm^2$ | 4.6 $cm^2$ |
| 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 |
| Sterlization | Autoclave at 121ºC (131ºC max) at 15 psi (1 bar) for 20 min | Autoclave at 121ºC (131ºC max) at 15 psi (1 bar) for 20 min |
| Glass microfiber prefiltration media | 100% borosilicate glass fiber<br>GMF 150 10 µm: 1 µm<br>GF/F 0.7 µm | 100% borosilicate glass fiber<br>GMF 150 10 µm: 1 µm<br>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 |
|---|---|---|---|
| **Whatman GD/X™ 13 mm syringe filters—nonsterile** | | | |
| 0.2 | 6880-1302 | CA | 150 |
| 0.45 | 6880-1304 | CA | 150 |
| 0.2 | 6870-1302 | Nylon | 150 |
| 0.2 | 6871-1302 | Nylon | 1500 |
| 0.45 | 6870-1304 | Nylon | 150 |
| 0.45 | 6871-1304 | Nylon | 1500 |
| 0.2 | 6876-1302 | PES | 150 |
| 0.45 | 6876-1304 | PES | 150 |
| 0.2 | 6872-1302 | PVDF | 150 |
| 0.45 | 6872-1304 | PVDF | 150 |
| 0.45 | 6873-1304 | PVDF | 1500 |
| 0.2 | 6878-1302 | PP‡ | 150 |
| 0.45 | 6878-1304 | PP‡ | 150 |
| 0.2 | 6874-1302 | PTFE | 150 |
| 0.2 | 6875-1302 | PTFE | 1500 |
| 0.45 | 6874-1304 | PTFE | 150 |
| 0.45 | 6875-1304 | PTFE | 1500 |
| 1.6* | 6882-1316 | GF/A† | 150 |
| 1.0* | 6884-1310 | GF/B† | 150 |
| 1.2* | 6886-1312 | GF/C™† | 150 |
| 2.7* | 6888-1327 | GF/D† | 150 |
| 0.7* | 6890-1307 | GF/F† | 150 |
| 0.45* | 6894-1304 | GMF | 150 |
| **Whatman GD/X™ 25 mm syringe filters—nonsterile** | | | |
| 0.45 | 6882-2504 | RC | 150 |
| 0.2 | 6888-2502 | RC | 1500 |
| 0.45 | 6883-2504 | RC | 1500 |
| 0.2 | 6880-2502 | CA | 150 |
| 0.45 | 6880-2504 | CA | 150 |
| 0.45 | 6881-2504 | CA | 1500 |
| 0.2 | 6869-2502 | Nylon high charge (positive) | 150 |
| 0.45 | 6869-2504 | Nylon high charge (positive) | 150 |
| 0.2 | 6870-2502 | Nylon | 150 |
| 0.2 | 6871-2502 | Nylon | 1500 |
| 0.45 | 6870-2504 | Nylon | 150 |
| 0.45 | 6871-2504 | Nylon | 1500 |
| 5.0 | 6870-2550 | Nylon | 150 |
| 5.0 | 6871-2550 | Nylon | 1500 |

| Pore size (µm) | Catalog number | Media | Quantity/pack |
|---|---|---|---|
| **Whatman GD/X™ 25 mm syringe filters—nonsterile (continuation)** | | | |
| 0.2 | 6876-2502 | PES | 150 |
| 0.2 | 6905-2502 | PES | 1500 |
| 0.45 | 6876-2504 | PES | 150 |
| 0.45 | 6905-2504 | PES | 1500 |
| 0.2 | 6872-2502 | PVDF | 150 |
| 0.2 | 6873-2502 | PVDF | 1500 |
| 0.45 | 6872-2504 | PVDF | 150 |
| 0.45 | 6873-2504 | PVDF | 1500 |
| 0.2 | 6878-2502 | PP | 150 |
| 0.45 | 6878-2504 | PP | 150 |
| 0.45 | 6879-2504 | PP | 1500 |
| 0.2 | 6874-2502 | PTFE | 150 |
| 0.2 | 6875-2502 | PTFE | 1500 |
| 0.45 | 6874-2504 | PTFE | 150 |
| 0.45 | 6875-2504 | PTFE | 1500 |
| 1.6* | 6882-2516 | GF/A† | 150 |
| 1.6* | 6883-2516 | GF/A† | 1500 |
| 1.0* | 6884-2510 | GF/B† | 150 |
| 1.2* | 6886-2512 | GF/C™† | 150 |
| 2.7* | 6888-2527 | GF/D† | 150 |
| 0.7* | 6890-2507 | GF/F† | 150 |
| 0.7* | 6891-2507 | GF/F† | 1500 |
| 0.45* | 6894-2504 | GMF† | 150 |
| 0.45* | 6895-2504 | GMF† | 1500 |
| 1.5* | 6892-2515 | 934-AH™† | 150 |
| **Whatman GD/X™ 25 mm syringe filters—sterile** | | | |
| 0.2 | 6896-2502 | PES | 50 |
| 0.45 | 6896-2504 | PES | 50 |
| 0.2 | 6900-2502 | PVDF | 50 |
| 0.45 | 6900-2504 | PVDF | 50 |
| 0.45* | 6902-2504 | GMF† | 50 |
| 0.2 | 6901-2502 | CA | 50 |
| 0.45 | 6901-2504 | 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

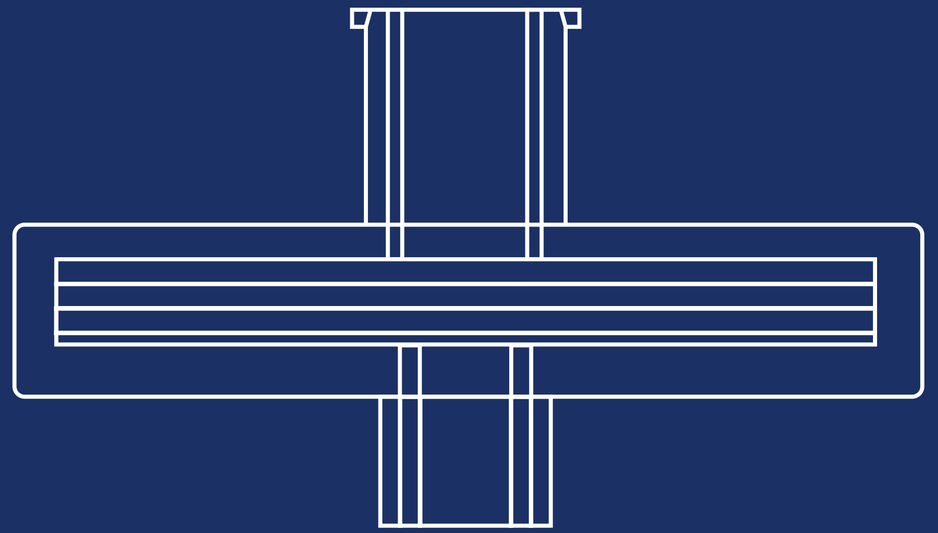
| | GD/XP 13 mm syringe filters |
|---|---|
| Housing | Polypropylene (pigment free) |
| Filtration area | 4.6 $cm^2$ |
| Maximum pressure | 75 psi (5.2 bar) |
| Volume hold-up full housing with air purge | 1.4 mL<br>250 µL (approx) |
| Dimensions | 20.8 × 30.0 mm |
| Weight | 3 g (approx) |
| Flow direction | Flow should enter from the inlet |
| Inlet connection | Female Luer lock |
| Outlet connection | Male Luer |
| Sterlization | 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 | 6970-2504 | Nylon | Yes | 150 |
| 25 | 0.45 | 6971-2504 | Nylon | Yes | 1500 |
| 25 | 0.45 | 6994-2504 | PES | Yes | 150 |
| 25 | 0.45 | 6995-2504 | PES | Yes | 1500 |
| 25 | 0.45 | 6972-2504 | PVDF | Yes | 150 |
| 25 | 0.45 | 6973-2504 | PVDF | Yes | 1500 |
| 25 | 0.45 | 6978-2504 | PP | No | 150 |
| 25 | 0.45 | 6992-2504 | DpPP | No | 150 |
| 25 | 0.45 | 6974-2504 | PTFE | No | 150 |
| 25 | 0.45 | 6993-2504 | 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 $cm^2$ | 4.78 $cm^2$ |
| 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 |
|---|---|---|---|
| **Anotop™ 10 Plus syringe filters** | | | |
| 0.02 | Anopore™ with prefilter | 6809-3002 | 50 |
| 0.1 | Anopore™ with prefilter | 6809-3012 | 50 |
| 0.2 | Anopore™ with prefilter | 6809-3022 | 50 |
| 0.02 | Anopore™ with prefilter, sterile | 6809-3102 | 50 |
| 0.1 | Anopore™ with prefilter, sterile | 6809-3112 | 50 |
| 0.2 | Anopore™ with prefilter, sterile | 6809-3122 | 50 |
| **Anotop™ 25 Plus syringe filters** | | | |
| 0.02 | Anopore™ with prefilter | 6809-4002 | 50 |
| 0.1 | Anopore™ with prefilter | 6809-4012 | 50 |
| 0.2 | Anopore™ with prefilter | 6809-4022 | 50 |
| 0.02 | Anopore™ with prefilter, sterile | 6809-4102 | 50 |
| 0.1 | Anopore™ with prefilter, sterile | 6809-4112 | 50 |
| 0.2 | Anopore™ with prefilter, sterile | 6809-4122 | 50 |
| 0.2 | Anopore™ with prefilter | 6809-4024 | 200 |

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# All-in-one filters and filter vials

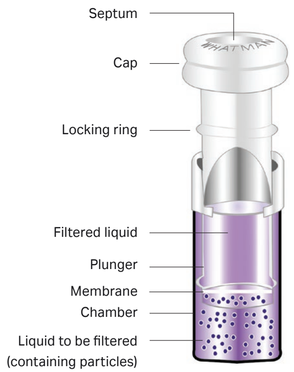
# All-in-one filters and filter vials

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 |
|---|---|---|---|
| **Standard cap—translucent housing** | | | |
| 0.2 | UN203NPENYL | Nylon | 100 |
| 0.2 | UN503NPENYL | Nylon | 1000 |
| 0.45 | UN203NPUNYL | Nylon | 100 |
| 0.45 | UN503NPUNYL | Nylon | 1000 |
| 0.2 | UN203NPEPES | PES | 100 |
| 0.45 | UN203NPUPES | PES | 100 |
| 0.45 | UN503NPUPES | PES | 1000 |
| 0.2 | UN203NPEAQU | PVDF | 100 |
| 0.2 | UN503NPEAQU | PVDF | 1000 |
| 0.45 | UN203NPUAQU | PVDF | 100 |
| 0.45 | UN503NPUAQU | PVDF | 1000 |
| 0.2 | UN203NPERC | RC | 100 |
| 0.2 | UN503NPERC | RC | 1000 |
| 0.45 | UN203NPURC | RC | 100 |
| 0.45 | UN503NPURC | RC | 1000 |
| 0.2 | UN203NPEORG | PTFE | 100 |
| 0.2 | UN503NPEORG | PTFE | 1000 |
| 0.45 | UN203NPUORG | PTFE | 100 |
| 0.45 | UN503NPUORG | PTFE | 1000 |
| 0.2 | UN203NPEPP | PP | 100 |
| 0.2 | UN503NPEPP | PP | 1000 |
| 0.45 | UN203NPUPP | PP | 100 |
| 0.45 | UN503NPUPP | PP | 1000 |
| 0.45 | UN203NPUDPP | DpPP | 100 |
| 0.45 | UN503NPUDPP | DpPP | 1000 |
| 0.45 | UN203NPUGMF | GMF | 100 |
| 0.45 | UN503NPUGMF | GMF | 1000 |
| **Accessories: multi-compressor** | | | |
| – | MUPMCPBC8 | Mini-UniPrep™ multi-compressor 1/pack comes with one tray | |
| – | MUPMCBT8 | 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 |
|---|---|---|---|
| **Slit septum cap, translucent housing** | | | |
| 0.2 | US203NPENYL | Nylon | 100 |
| 0.2 | US503NPENYL | Nylon | 1000 |
| 0.45 | US203NPUNYL | Nylon | 100 |
| 0.2 | US203NPEPES | PES | 100 |
| 0.2 | US503NPEPES | PES | 1000 |
| 0.45 | US203NPUPES | PES | 100 |
| 0.2 | US203NPEAQU | PVDF | 100 |
| 0.2 | US503NPEAQU | PVDF | 1000 |
| 0.45 | US203NPUAQU | PVDF | 100 |
| 0.45 | US503NPUAQU | PVDF | 1000 |
| 0.2 | US203NPEORG | PTFE | 100 |
| 0.2 | US503NPEORG | PTFE | 1000 |
| 0.45 | US203NPUORG | PTFE | 100 |
| 0.45 | US503NPUORG | PTFE | 1000 |
| 0.2 | US203NPEPP | PP | 100 |
| 0.2 | US503NPEPP | PP | 1000 |
| 0.45 | US203NPUPP | PP | 100 |
| 0.45 | US503NPUPP | PP | 1000 |
| 0.45 | US203NPUDPP | DpPP | 100 |
| 0.45 | US503NPUDPP | DpPP | 1000 |
| 0.45 | US203NPUGMF | GMF | 100 |
| 0.45 | US503NPUGMF | GMF | 1000 |
| **Amber housing (for light sensitive samples), standard cap** | | | |
| 0.2 | UN203APENYL | Nylon | 100 |
| 0.45 | UN203APUNYL | Nylon | 100 |
| 0.2 | UN203APEPES | PES | 100 |
| 0.45 | UN203APUPES | PES | 100 |
| 0.2 | UN203APEAQU | PVDF | 100 |
| 0.45 | UN203APUAQU | PVDF | 100 |
| 0.2 | UN203APEORG | PTFE | 100 |
| 0.45 | UN203APUORG | PTFE | 100 |
| 0.2 | UN203APEPP | PP | 100 |
| 0.45 | UN203APUPP | PP | 100 |
| 0.45 | UN203APUDPP | DpPP | 100 |
| 0.45 | UN203APUGMF | GMF | 100 |
| **Amber housing (for light sensitive samples), slit septum cap** | | | |
| 0.45 | US203APUNYL | Nylon | 100 |

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

The Mini-UniPrep™ G2 integrated syringless 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.

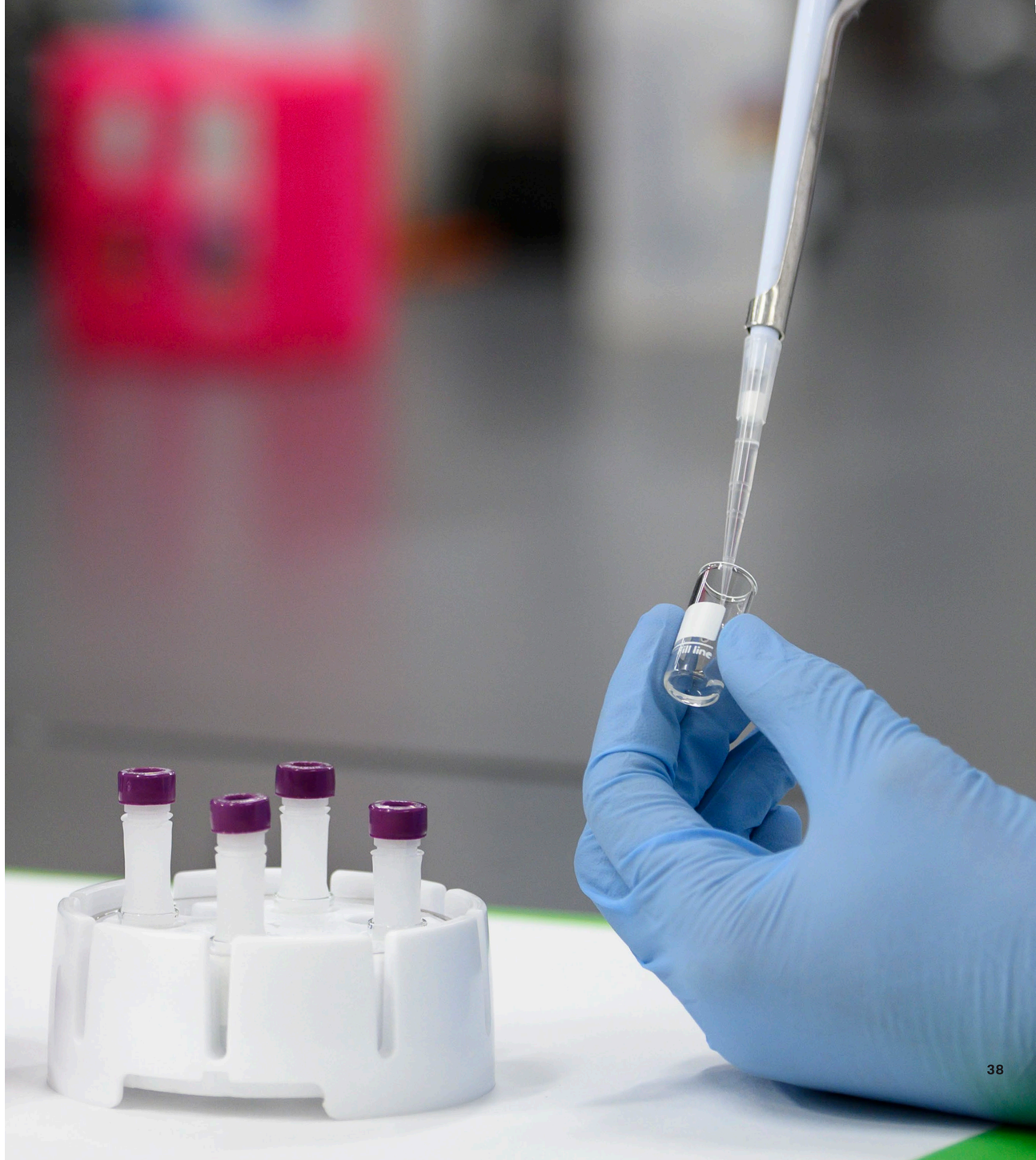
## Technical specifications

**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<br>Polypropylene (PP)<br>Polytetrafluoroethylene (PTFE)<br>Regenerated cellulose (RC) or polyethersulfone (PES)<br>Polyvinylidene difluoride (PVDF) or regenerated cellulose (RC)<br>Polypropylene depth filter, non-woven PP fibers |
| Maximum operating temp. | 50°C (122°F) |
| Filtering capacity | Chamber (unfiltered sample): 500 µL<br>Inner storage vial (filtered sample): 330 µL<br>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 | GN203NPEORG | GN503NPEORG | GN203NPEORGSP |
| 0.2 | PTFE | Translucent | Slit septum | GS203NPEORG | GS503NPEORG | GS203NPEORGSP |
| 0.2 | PTFE | Amber | Normal | GN203APEORG | – | GN203APEORGSP |
| 0.45 | PTFE | Translucent | Normal | GN203NPUORG | GN503NPUORG | GN203NPUORGSP |
| 0.45 | PTFE | Translucent | Slit septum | GS203NPUORG | GS503NPUORG | GS203NPUORGSP |
| 0.2 | PVDF | Translucent | Normal | GN203NPEAQU | GN503NPEAQU | GN203NPEAQUSP |
| 0.2 | PVDF | Translucent | Slit septum | GS203NPEAQU | GS503NPEAQU | GS203NPEAQUSP |
| 0.2 | PVDF | Amber | Normal | GN203APEAQU | – | GN203APEAQUSP |
| 0.45 | PVDF | Translucent | Normal | GN203NPUAQU | GN503NPUAQU | GN203NPUAQUSP |
| 0.45 | PVDF | Translucent | Slit septum | GS203NPUAQU | GS503NPUAQU | GS203NPUAQUSP |
| 0.2 | RC | Translucent | Normal | GN203NPERC | GN503NPERC | GN203NPERCSP |
| 0.45 | RC | Translucent | Normal | GN203NPURC | GN503NPURC | GN203NPURCSP |
| 0.2 | Nylon | Translucent | Normal | GN203NPENYL | GN503NPENYL | GN203NPENYLSP |
| 0.2 | Nylon | Translucent | Slit septum | GS203NPENYL | GS503NPENYL | GS203NPENYLSP |
| 0.2 | PP | Translucent | Normal | GN203NPEPP | GN503NPEPP | GN203NPEPPSP |
| 0.2 | PP | Translucent | Slit septum | GS203NPEPP | – | GS203NPEPPSP |
| 0.45 | Glass fiber | Translucent | Normal | GN203NPUGMF | GN503NPUGMF | GN203NPUGMFSP |
| 0.45 | Glass fiber | Translucent | Slit septum | GS203NPUGMF | – | GS203NPUGMFSP |
| **Hand compressor** | | | | | | |
| Mini-UniPrep™ G2 hand compressor 1/pack | | | | | | MUPG2HCPWC1 |
| **Multi-compressor** | | | | | | |
| Mini-UniPrep™ G2 multi-compressor 1/pack, comes with one tray | | | | | | MUPG2MCPWC8 |
| Mini-UniPrep™ G2 multi-compressor tray 1/pack | | | | | | MUPG2MCWT8 |

* *Starter pack includes 100 filters with hand compressor*

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

7

# Advantage syringe filters

# Advantage syringe filters

## Whatman™ Uniflo™ syringe filters

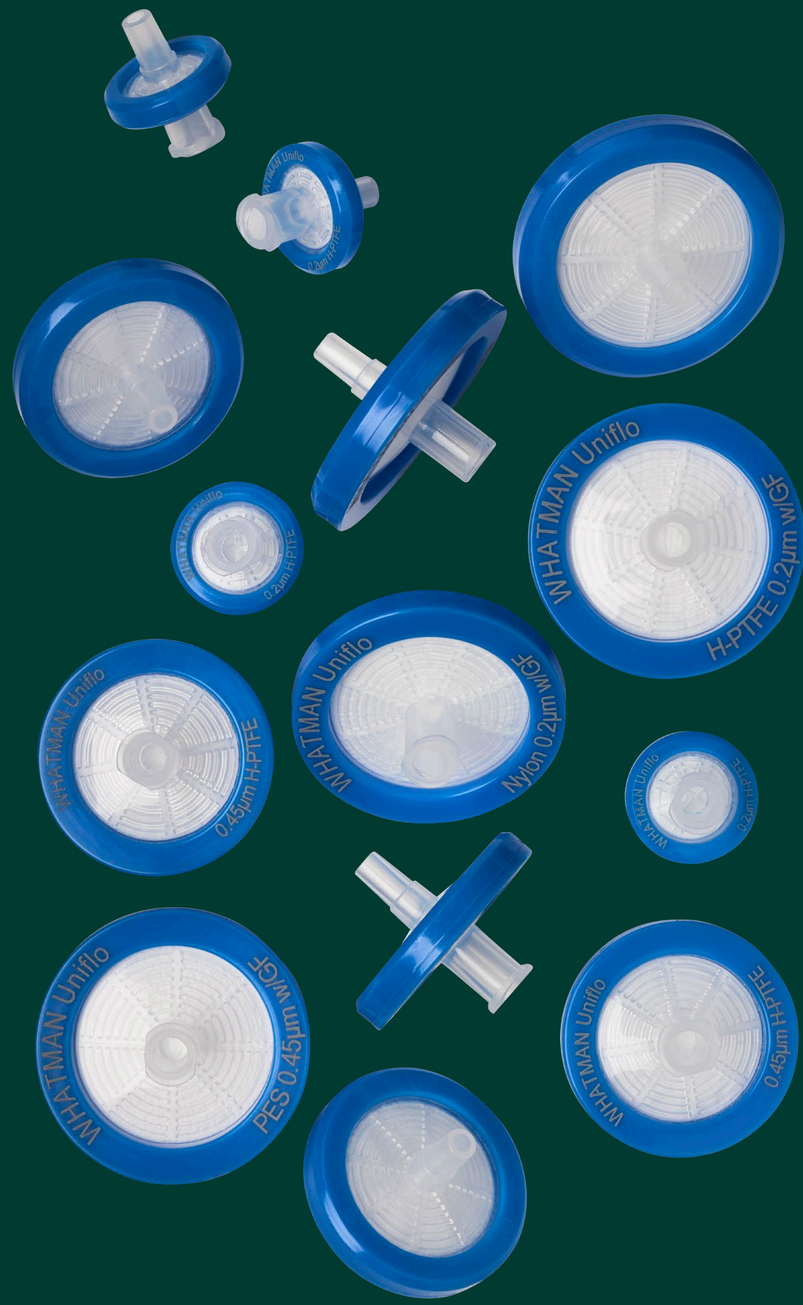
Reliable quality, economical portfolio for basic applications.

- 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 cm² | 3.45 cm² | 4.98 cm² |
| 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† | Nylon | PES | PTFE | Quantity |
| **Pore size (µm)** | | | | |
| 0.2 | 9910-1302 | 9912-1302 | 9911-1302 | 500/pack |
| 0.45 | 9910-1304 | 9912-1304 | 9911-1304 | 500/pack |

| | | Non-sterile, 25 mm | | | | |
|---|---|---|---|---|---|---|
| Membrane† | Nylon | PES | PTFE | PVDF | H-PTFE | Quantity |
| **Pore size (µm)** | | | | | | |
| 0.2 | 9910-2502 | 9912-2502 | 9911-2502 | 9909-2502 | 9921-2502 | 500/pack |
| 0.45 | 9910-2504 | 9912-2504 | 9911-2504 | 9909-2504 | 9921-2504 | 500/pack |

| | | Non-sterile, 30 mm with GF* prefilter | | | | |
|---|---|---|---|---|---|---|
| Membrane† | Nylon | PES | PTFE | PVDF | H-PTFE | Quantity |
| **Pore size (µm)** | | | | | | |
| 0.2 | 9930-3002 | 9924-3002 | 9928-3002 | 9926-3002 | 9932-3002 | 500/pack |
| 0.45 | 9930-3004 | 9924-3004 | 9928-3004 | 9926-3004 | 9932-3004 | 500/pack |

* *GF = glass fiber*
† *PES = Polyethersulfone; PTFE = Polytetrafluoroethylene; PVDF = Polyvinylidene difluoride; H-PTFE = Hydrophilic polytetrafluoroethylene*
‡ *For a full list of products visit cytiva.com*

| | Sterile, 13 mm | Non-sterile, 13 mm | | |
|---|---|---|---|---|
| Membrane* | PES | PES | PVDF | Quantity |
| **Pore size (µm)** | | | | |
| 0.2 | 9916-1302 | – | – | 100/pack |
| 0.45 | 9916-1304 | – | – | 100/pack |
| 0.2 | – | 9914-2502 | 9913-2502 | 45/pack |
| 0.45 | – | 9914-2504 | 9913-2504 | 45/pack |

* *PES = Polyethersulfone; PVDF = Polyvinylidene difluoride*

For full list of products visit
**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 | 10463803 | NYL/PP | FLL/ML | Yellow | 200[†] |
| 25 | 0.45 | Roby NL | 10463802 | NYL/PP | FLL/ML | Yellow | 1000 |
| 25 | 0.45 | Roby RC | 10463806 | RC/PP | FLL/ML | Translucent brown | 1000 |
| 25 | 0.45 | Roby RC-GF92 | 10463809 | RC-GF/PP | FLL/ML | Brown | 200* |
| 25 | 0.45 | Roby RC-GF92 | 10463808 | RC-GF/PP | FLL/ML | Brown | 1000 |
| 25 | 0.7 | Roby GF55 | 10463814 | GF/PP | FLL/ML | Natural | 200* |
| 25 | 0.7 | Roby GF55 | 10463815 | GF/PP | FLL/ML | Natural | 1000 |
| 25 | 1.0 | Roby GF92 | 10463801 | GF/PP | FLL/ML | Natural | 200* |
| 25 | 1.0 | Roby GF92 | 10463800 | GF/PP | FLL/ML | Natural | 1000 |
| 25 | – | Filter Validation Kit[†] | 10463898 | – | FLL/ML | – | 1 |

* *8 tubes with 25 pieces each*
† *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 | 7707-3000 | 50 |
| 0.45 | Nylon | 7707-3100 | 50 |
| 0.45 | PES | 7707-3200 | 50 |
| 0.7 | GMF | 7707-3300 | 50 |
| 0.2 | PTFE | 7707-3400 | 50 |
| 0.2 | Nylon | 7707-3500 | 50 |
| 0.2 | PES | 7707-3600 | 50 |
| 0.2 | PVDF | 7707-3700 | 50 |
| 0.45 | PVDF | 7707-3800 | 50 |
| 1.0 | GMF | 7707-3900 | 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

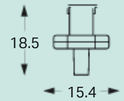
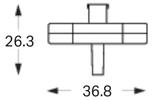
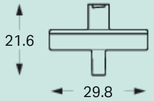
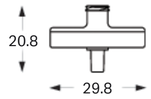
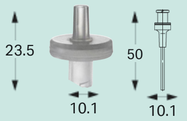
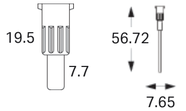
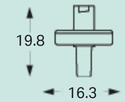


# Ordering information

## General laboratory accessories

| Description | Product name | Dimension | Quantity | Product code |
|---|---|---|---|---|
| **Phase separation paper**<br>• Separatory funnel replacement: Automatic cut-off<br>• Ease of use: no special training required | 1PS Phase separator paper | Diam. 125 mm | 100/pack | 2200-125 |
| | | Diam. 150 mm | 100/pack | 2200-150 |
| **Optical lens cleaning tissue**<br>• Soft tissue for removing surface moisture and grease from lenses and other optical surfaces | Grade 105 | 100 × 150 mm | 25 wallets of 25 sheets | 2105-841 |
| | | 200 × 300 mm | 100/pack | 2105-862 |
| **Benchkote™ bench protection papers**<br>• High-quality, smooth, absorbent Whatman™ paper<br>• Quickly absorbs liquid spills and protect the working surface<br>• Benchkote™ Plus is thicker and more absorbent | Benchkote™ | 460 × 570 mm | 50/pack | 2300-916 |
| | | 460 mm × 50 m | 1/pack | 2300-731 |
| | Benchkote™ Plus | 500 × 600 mm | 50/pack | 2301-6150 |
| | | 600 mm × 50 m | 1/pack | 2301-6160 |
| **pH Indicator Paper**<br>• 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 | 2613-991 |
| | Standard Full Range, Reel, 1.0 to 14.0 range | 7 mm × 5 m | 1/pack | 2600-100A |
| | Standard Narrow Range, Reel, 4.0 to 7.0 range | 7 mm × 5 m | 1/pack | 2600-102A |
| **Pump protection filters**<br>• 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 | 6722-5000 |
| **Filtration flask for batch filtration**<br>• Consists of a 250 mL glass filtration funnel and 1000 mL flask, funnel base, top, and clamp<br>• Good choice for use with Whatman™ filtration membranes | GV050/2 vacuum filtration unit | N/A | N/A | 10442200 |

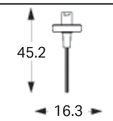
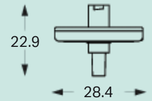
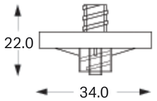
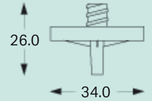
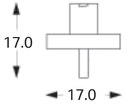
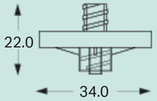
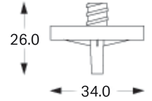
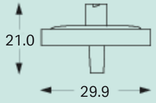
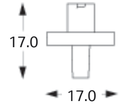
# Technical data of syringe filters

| Name | Diameter (mm) | Housing material* | Max. operating pressure (psi/bar) | Effective filter area ($cm^2$) | 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<br>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<br>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<br>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*

*Continues on next page .*

*Continued from previous page.*

| Name | Diameter (mm) | Housing material* | Max. operating pressure (psi/bar) | Effective filter area ($cm^2$) | 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, SPART AN™ 13 with Mini-Tip in-line disk filter | 13 | PP | 100/6.9 | 0.75 | < 30 | 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 | < 300 | 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 | < 30 | 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‡ | 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† | R | R | R | NR | R | R | LR | NR | NR | R | R | R | R | R |
| Benzyl alcohol† | 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† | – | – | – | – | – | R | NR | NR | NR | – | – | R | R | – |
| Carbon tetrachloride† | R | NR | R | LR | R | R | LR | NR | NR | NR | R | R | R | R |
| Chloroform† | R | NR | R | NR | R | R | NR | LR | LR | NR | R | R | R | R |
| Chlorobenzene† | 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*

† *Short Term Resistance of Housing.*
‡ *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.*

*Continues on next page .*

*Continued from previous page.*

| Solvent | ANP | CA | CN | PC | PE | GMF | NYL | PP | DpPP | PES | H-PTFE | PTFE‡ | 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† | 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† | 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† | R | LR | R | NR | R | R | LR | LR | LR | NR | R | R | R | R |
| Trichloroethane† | R | NR | LR | NR | R | R | LR | LR | LR | NR | R | R | R | R |
| Trichloroethylene† | 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† | R | R | R | – | – | R | LR | LR | LR | LR | R | R | R | R |

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