GE Healthcare
Life Sciences

Fisher Scientific

Quality matters

Whatman™ filtration products for pharmaceutical quality control.

Quality matters

Why does quality matter?

Quality matters because you need to focus on conducting rigorous pharmaceutical quality control (QC) without worrying about the quality of the materials you use on a daily basis. That is why GE Healthcare Life Sciences is committed to supporting your pharmaceutical QC goals with high-quality Whatman filtration products that meet the highest standards—from beginning to the end of the manufacturing and QC process.

This brochure highlights the extensive range of GE Healthcare filtration solutions for pharmaceutical quality control offered under the Whatman brand. Whatman filter papers are world-renowned as a standard for laboratory filtration and are associated with quality, reliability, and customer service. Choosing Whatman filters means:

- A broad range of filtration options to meet any specific requirements you may have
- High reproducibility in order to allow for consistent performance
- Products manufactured to strict quality standards in ISO certified facilities


Intertek

Certificate of Registration

ISO 9001:2008

GE Healthcare Life Sciences

Amersham (United Kingdom), other locations according to appendix

The Management System is applicable to:

Development, manufacture, sales, service and distribution of chemicals, devices and instruments for Life Sciences

Fig 1: GE Healthcare has chosen ISO 9001: 2008 as the quality standard for our Quality Management System.

Complete range of innovative Whatman filtration products for pharmaceutical quality control

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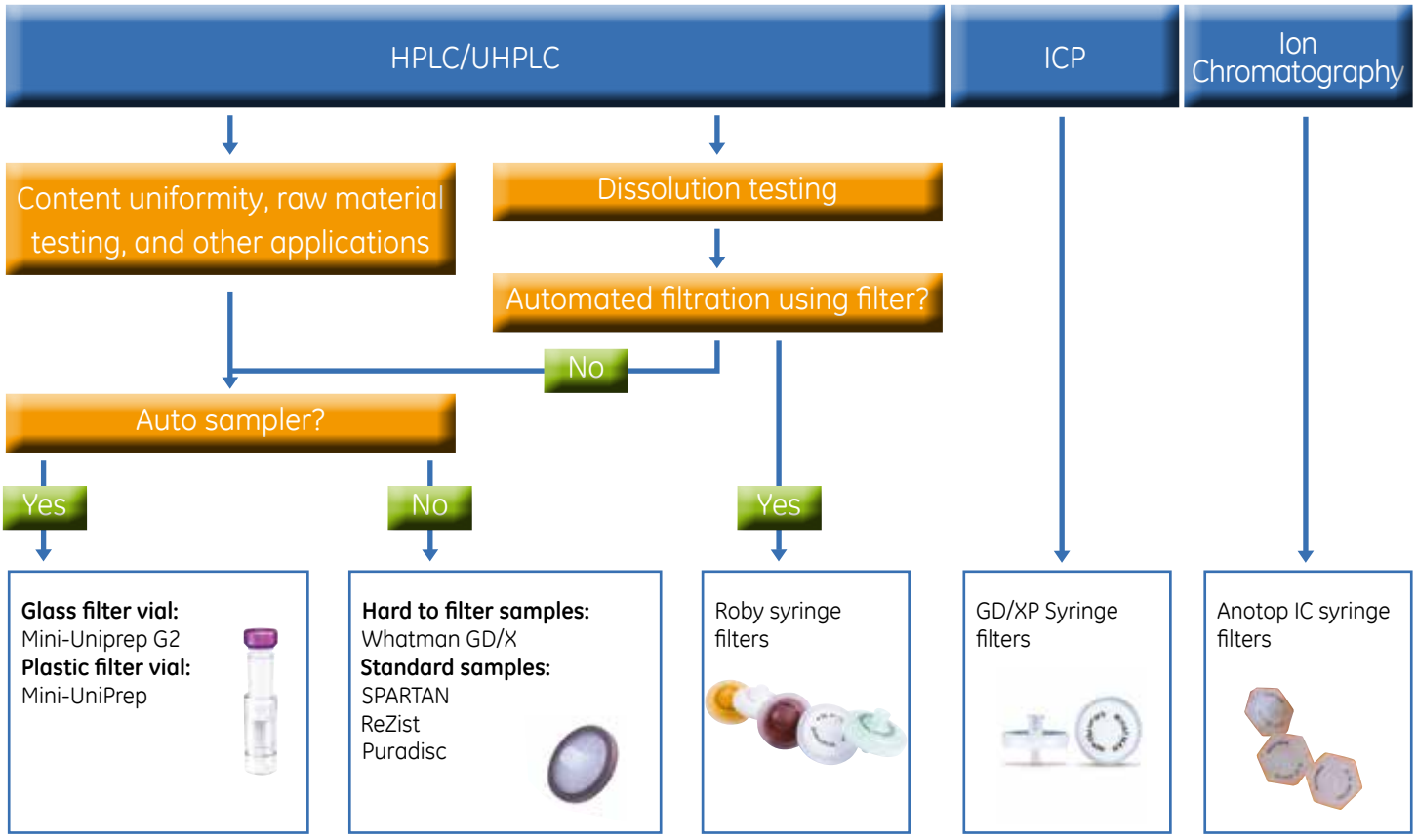
Analytical testing (including dissolution testing)

Syringe filters and filter vials selection tree according to analytical technique



Syringe filters overview

Syringe filter type	Without prefilter				With prefilter		For dissolution testing
Product	**Puradisc**	**SPARTAN**	**Anotop IC**	**ReZist**	**Whatman GD/X™**	**GD/XP**	**Roby**
Main feature	Complete range	Regenerated cellulose membrane HPLC certified	Each batch certified for IC	PTFE membrane (for aggressive solvents)	For hard to filter samples	For hard to filter samples with low inorganic ions levels	For automated systems
Pre-Filter	N/A	N/A	N/A	N/A	Multilayer glass fiber prefilter GMF150 10-1 µm GF/F 0.7 µm	Multilayer polypropylene prefilter (20-5 µm)	Glass fiber prefilter on select products
Diameter	4, 13, 25, or 30 mm	13 or 30 mm	10 or 25 mm	13 or 30 mm	13 or 25 mm	25 mm	25 mm
Main available pore sizes	0.1, 0.2, 0.45, 0.8, 1.0, 1.2, 5 µm	0.2 or 0.45 µm	0.2 µm	0.2 or 0.45 µm	0.2, 0.45, 0.7, 1.0, 1.2, 1.5, 2.7, 5.0 µm	0.45 µm	0.45 µm 0.7 µm 1.0 µm
Main membrane materials available	Cellulose acetate, Nylon, PES, PVDF, PP, PTFE	Regenerated cellulose	Aluminium oxide	PTFE	Cellulose acetate, Nylon, PES, PVDF, PP, PTFE, RC	Nylon, PES, PVDF, PP, PTFE	Nylon, cellulose acetate, regenerated cellulose, glass fiber GF55, glass fiber GF92

Mini-UniPrep filter vials for increased throughput

Whatman Mini-UniPrep Syringeless Filters provide a faster, easier way to remove particulates from samples being prepared for HPLC/UHPLC analysis. Syringeless filters simplify your workflow and reduce waste generated in the lab by replacing four different components with one Mini-UniPrep. Two versions are available: the Mini-UniPrep G2 with a glass vial and the original Mini-UniPrep polypropylene version.

Features:

- Consists of an integral borosilicate glass (G2 version) or polypropelene autosampler vial, plunger with attached filter membrane, and septum/cap
- Designed to be loaded directly into the autosampler
- Compatible with any autosampler that accommodates standard 12 mm x 32 mm profile vials (needle height of the autosampler may need adjusting)
- Versions available with slit septum
- Versions available with amber housing for light sensitive samples

Benefits:

- Replaces syringe, syringe filter, vial, and cap
- Time savings with multicompressors (6 or 8 positions)
- Waste and cost reduction
- Includes visual indication that the sample has been filtered
- Minimizes instrument downtime due to unfiltered samples

Fig 2: Mini-UniPrep glass (left) and plastic versions. Once compressed, the dimensions are equivalent in size to 12 mm x 32 mm vial.

Mini-UniPrep G2 Syringeless Filter with inner glass storage vial

- Consists of an integral borosilicate glass autosampler vial, plunger with attached filter membrane, and septum/cap
- Glass construction minimizes the risk of leachables contaminating the sample
- Use with hand-held manual compressor or multicompressor shown in figures 3 and 4

Mini-UniPrep Syringeless Filter Polypropylene housing

- Polypropylene housing
- Use with 6 position multicompressor

Fig 3: Left: Multi-unit compressor holding eight Mini-UniPrep G2 filters Right: Single Mini-UniPrep G2 filter in a hand compressor. The compressors shown are for illustration purposes only and are not intended to represent the actual compressors. It is the buyer's responsibility to clarify with the seller the exact design of the compressors.

Fig 4: The multicompressor of the Mini-UniPrep polypropylene version holds 6 vials.

Ordering information - Mini-UniPrep with polypropylene housing

Pore size	Housing	Cap	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.	Quantity
	Membrane type		PTFE	PVDF	Nylon	PP	RC	PES	
0.2 µm	Translucent	Standard	09923102	09923100	09923101	09923104	09924401	09927651	100/pack
0.45 µm	Translucent	Standard	0992328	0992325	0992329	0992331	09924400	0992330	100/pack
0.2 µm	Amber	Standard	09924584	09923248	09927815	09923252		09927632	100/pack
0.45 µm	Amber	Standard	09923256	09923253	09924585	09923258		09927816	100/pack
0.2 µm	Translucent	Slit septum	09923112	09923110	09923111	09923114		09923113	100/pack
0.45 µm	Translucent	Slit septum	09923119	09924588	09923118	09923121			100/pack

Ordering information - Mini-UniPrep G2 with inner glass storage vial

Pore size	Housing	Cap	Code no.	Code no.	Code no.	Code no.	Quantity
	Membrane type		PTFE	PVDF	Nylon	PP	
0.2 µm (HC)	Translucent	Standard	09924456	09924460	09924463	09924465	100/pack + HC
0.2 µm	Translucent	Standard	09924455	09924459		09924464	100/pack
0.45 µm (HC)	Translucent	Standard	09924458	09924462			100/pack + HC
0.45 µm	Translucent	Standard	09924457	09924461			100/pack
0.2 µm (HC)	Amber	Standard	09924466	09924467			100/pack + HC
0.2 µm (HC)	Translucent	Slit septum	09924468				100/pack + HC
0.45 µm (HC)	Translucent	Slit septum	09924469				100/pack + HC

HC = Includes one Hand Compressor

Ordering information - Mini-UniPrep Compressors

Compressors suitable for	Description	Code no.	Quantity
Mini-UniPrep G2 (glass vial)	Hand Compressor - 1 position	09924470	1/pack
	Multi Compressor - 8 positions (includes 1 Tray)	09924491	1/pack
	Multi Compressor Tray	09924492	1/pack
Mini-UniPrep (polypropylene vial)	Multi Compressor - 6 positions	0992713	1/pack

SPARTAN™ HPLC - certified syringe filters

SPARTAN is one of the most versatile syringe filters for the majority of HPLC samples. It includes regenerated cellulose (RC) membrane, which is both chemically resistant and free of interfering extractable.

Fig 5: SPARTAN syringe filters are tested and certified for the absence of UV-absorbing substances at wavelengths of 210 and 254 nm with water, methanol, and acetonitrile. Batch certificates can be downloaded from: www.gelifesciences.com/certificates

Features and benefits:

- Versatile: Use for any application requiring a chemically resistant, hydrophilic, low protein-binding membrane
- Documented batch-to-batch quality delivers reproducible results
- Optional Mini-Tip outlet (13 mm diameter version) enables filtration into very small vials

Ordering information - SPARTAN syringe filters

Membrane	Pore size	Code no. 13 mm diameter	Code no. 13 mm diameter with mini-tip	Code no. 30 mm diameter	Quantity
Regenerated cellulose	0.2 µm	09302144	09302142	09302150	100/pack
Regenerated cellulose	0.2 µm	09302145	09302143	09302151	500/pack
Regenerated cellulose	0.45 µm	09302148	09302146	09302153	100/pack
Regenerated cellulose	0.45 µm	09302149	09302147	09302154	500/pack

ReZist™ Syringe filters for aggressive organic solvents

Whatman ReZist filters are specifically designed to be resistant to organic solvents. ReZist 30 mm filters can also be used as venting filters for small vessels.

Fig 6: 30 mm and 13 mm diameter ReZist syringe filters.

Features and benefits:

- Excellent chemical resistance against standard organic HPLC solvents
- 13 mm diameter with Mini-Tip outlet permits filtration into very small vials

Ordering information – ReZist syringe filters

Membrane	Pore size	Code no. 13 mm diameter with mini-tip	Code no. 30 mm diameter	Quantity
PTFE	0.2 µm	09302178	09302180	100/pack
PTFE	0.2 µm		09302181	500/pack
PTFE	0.45 µm	09302179	09302182	100/pack
PTFE	0.45 µm		09302183	500/pack
GF 92 (glass)	> 1 µm		09302190	100/pack
GF 92 (glass)	> 1 µm		09302191	500/pack

Roby 25 Syringe filters for automated tablet dissolution testing

Roby 25 Syringe Filters were developed specifically for automated sample filtration in robotic systems.

Features and benefits:

- Broad choice of membranes
- Optimized for Sotax™, Caliper™ (Zymark™), and Varian™ tablet testers
- Available with glass fiber prefilter for the filtration of difficult-to-filter samples
- Roby 25 Filter validation kit available (kit includes six types of filters: one tube of 25 filters of each type, for a total of 150 filters. Plus filter validation protocol with filter selection aid.)

Fig 7: Roby 25 syringe filters.

Ordering information - Roby 25 mm syringe filters

Membrane/glass fiber filter	Pore size	Code no. 200/pack*	Code no. 1000/pack
Nylon**	0.45 µm	09302132	09302133
Nylon with GF92 prefilter	0.45 µm	09302134	09302135
Regenerated cellulose	0.45 µm	09302136	09302137
Regenerated cellulose with GF92 prefilter	0.45 µm	09302138	09302100
Cellulose acetate with GF92 prefilter**	0.45 µm	09302139	09302140
Glass fiber GF55	0.7 µm	09302130	09302131
Glass fiber GF92	1 µm	09302128	09302129

*8 tubes of 25 pieces each - **not included in the filter validation kit

Description	Code no.
Roby 25 Filter Validation Kit	05713385

In addition, GE Healthcare offers flat glass fiber filters that are widely used for dissolution testing in semi-automated systems.

Please refer to page 15 for more information on our glass fiber grades such as GF/F.

Puradisc Syringe filters for routine sample filtration

Puradisc Syringe filters combine quality and economy for filtration of samples up to 100 ml.

Features and benefits:

- Pigment-free polypropylene housing
- Standard inlet and outlet luer connectors
- Choice of filter sizes (4 mm to 30 mm) with optional Tube Tip)
- Choice of wide variety of membranes or glass microfiber filter media

Fig 8: Puradisc syringe filters.

Ordering information - Puradisc syringe filters, 25 mm*

Pore size	Code no.	Code no.	Code no.	Code no.	Code no.	Quantity
Membrane type	Nylon	PVDF	PTFE	PP	PES	
0.2 µm	057101A	09302117	05713399	05713403	05713389	200/pack
0.45 µm	057101B	09302118	05713400	05713404	05713390	200/pack
0.2 µm					09302119	300/pack
0.45 µm	057102B					500/pack
0.2 µm	057103A		22022733	05713403	0991027	1000/pack
0.45 µm	057103B	09806107	05713392	05713404A	05713384	1000/pack

Whatman GD/X™ and GD/XP Syringe filters for hard-to-filter samples

Whatman GD/X and GD/XP are high-quality disposable syringe filters that include prefilters for filtering larger sample volumes quickly. GD/X and GD/XP are excellent for filtering solutions that are heavily contaminated with particulates.

Features and benefits:

- **Increased volume throughput:** Volume of sample filtered can be three to seven times greater than conventional filters
- **Superior performance:** up to four layers of filtration media reduce blockage and the need to replace the filter in midoperation
- **Less hand force required:** The pre-filter layer allows high particulate samples to be filtered with less hand force, minimizing operator fatigue

Whatman GD/X syringe filters (suitable for HPLC and UHPLC analysis)

GD/X syringe filters contain four filtration layers which help reduce blockage and increase volume throughput.

- Integrated multilayer prefilter (10 µm to 0.7 µm)
- Prefilter made of glass microfiber
- Broad choice of final membrane types (0.2 µm or 0.45 µm)
- 13 mm or 25 mm diameters available

Whatman GD/XP Syringe filters (suitable for ICP sample analysis)

GD/XP syringe filters can be used with samples that require inorganic ion analysis (e.g., trace metal analysis).

- Integrated dual-layer prefilter stack (20 µm and 5 µm) and one final 0.45 µm membrane
- Prefilter made of polypropylene for minimization of ion leaches
- 25 mm diameter

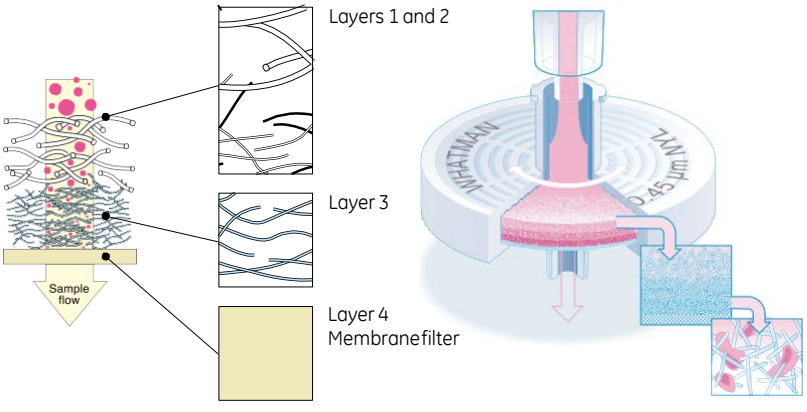


Fig 9: Whatman GD/X and GD/XP Syringe filters contain several filtration layers that substantially reduce blockage and increase volume throughput. This is a schematic representation of Whatman GD/X features only.

Fig 10: GD/X syringe filter.

Ordering information - GD/X and GD/XP syringe filters

Pore size	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.	Quantity
GD/X 25 mm with glass fiber prefilter								
Membrane type	Nylon	PVDF	PTFE	PP	PES	RC	CA	
0.2 µm	0992726C	0992728C	0992730C	0992733C	0992732C	05713931	0992734C	150 /pack
0.45 µm	0992726D	0992728D	0992730D	0992733D	0992732D	05713929	0992734D	150 /pack
0.2 µm	0992727C	0992729C	0992731C		09302104			1500 /pack
0.45 µm	0992727D	0992729D	0992731D	09925145	09302211	05713930	09302105	1500 /pack
GD/XP with polypropylene prefilter								
Membrane type	Nylon	PVDF	PTFE	PP	PES			
0.45 µm	0993020	0993022	0993024	0993026	0993030			150/pack
0.45 µm	0993021	0993023		0993029*	0993031			1500/pack

*DdPP- depth polypropylene

Anotop™ IC Syringe filters for ion chromatography (IC)

Whatman Anotop IC filters are for the preparation of samples for subsequent IC and HPLC analysis. These filters contain proprietary alumina-based Anopore™ membrane that enable very low levels of anion leaching during IC testing.

Fig 11: Anotop IC syringe filters.

Features and benefits:

- Very low levels of anion leaching (< 10 to 30 ppb for major anions)
- Pigment-free PP housing to eliminate sample contamination

Ordering information - Anotop IC Syringe filters

Membrane	Pore size	Quantity	Code no.
Anotop 10 IC (10 mm diameter)			
Aluminium oxide	0.2 µm	50/pack	09302124
Aluminium oxide	0.2 µm	100/pack	09302122
Aluminium oxide	0.2 µm	200/pack	09302123
Aluminium oxide	0.2 µm blister	250/pack	0992628
Anotop 25 IC (25 mm diameter)			
Aluminium oxide	0.2 µm	200/pack	09302125

Membrane filters for mobile phase filtration

GE Healthcare offers a wealth of experience and knowledge in the area of HPLC/UHPLC mobile phase preparatory membranes.

Features and benefits:

- A broad range of materials, pore sizes, and diameters
- Regenerated cellulose membranes (RC) are compatible with aqueous solvents and a vast majority of organic solvents

Fig 12: Whatman regenerated cellulose membranes—a good choice for mobile phase filtration (aqueous and organic).

Ordering information - Membrane filters (circles)

Membrane	Compatibility*	Pore size	Code no.	Code no.	Quantity
			47 mm diameter	50 mm diameter	
Nylon	Aqueous and organic solutions (3<pH<10)	0.2 µm	09927629	09927636	100/pack
		0.45 µm	09927669	09927672	100/pack
Regenerated cellulose	Aqueous and organic solutions	0.2 µm	09927571	09927574	100/pack
		0.45 µm	09927550	09927551	100/pack
PTFE	Organic solutions	0.2 µm	09874619	09874620	50/pack
		0.45 µm	09301099	09874618	50/pack

*Refer to table of Chemical Compatibility of Membranes on page 19.
Other membrane materials (such as polycarbonate, cellulose nitrate) with a wide variety of pore sizes, and diameters are available—please contact your Fisher representative for more information.

Whatman GV050/2 vacuum filtration unit

Whatman GV050/2 vacuum filtration unit consists of a 250 ml glass filtration funnel and 1000 ml flask, funnel base, top, and clamp. This apparatus complements the Whatman filtration membranes range.

Ordering information - Vacuum filtration unit

Product	Code no.
GV050/2 vacuum filter holder 1/pack	09927396

Fig 13: GV050/2 vacuum filtration unit for membrane filtration.

General filtration

Cellulose filter papers

GE Healthcare offers an extensive line of cellulose filter papers. Whatman filters deliver high quality, reproducibility, and uniformity for quality control labs in the pharmaceutical industries.

Fig 14: Pre-pleated filter format.

Fig 15: Whatman flat filter paper (Grade 44).

Features and benefits:

- Wide choice of retention and flow rate combinations—retention down to 2.5 µm
- A variety of filters with different levels of purity, hardness, and chemical resistance
- Pre-pleated format available for some grades: they are suitable for hard-to-filter samples or to increase flow rate

Qualitative cellulose filter papers

Whatman qualitative cellulose filters are for qualitative analytical experiments to determine and identify specific materials.

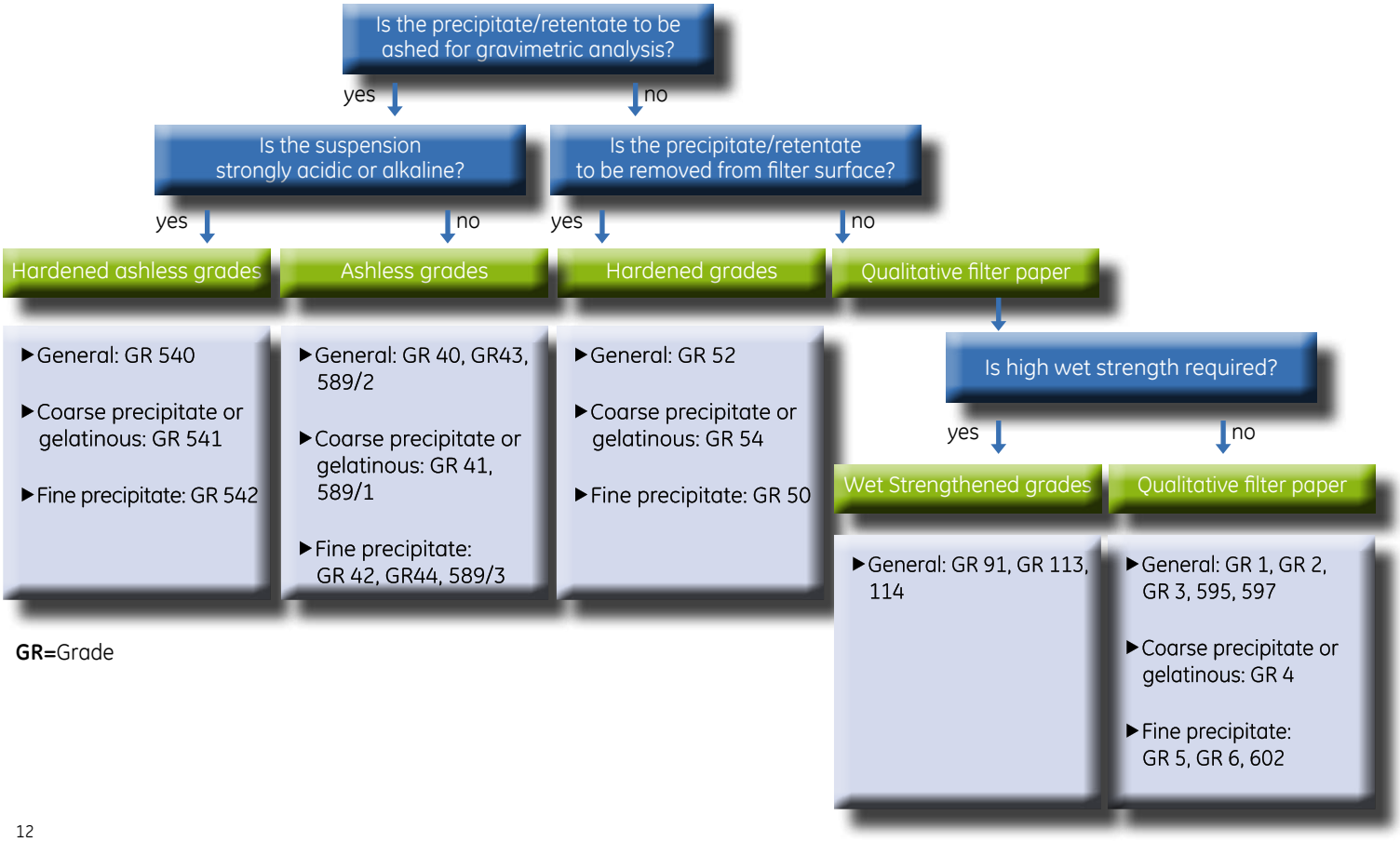
The two formats available are:
- Standard qualitative filters papers
- Wet strengthened filter papers

Quantitative cellulose filter papers

Whatman quantitative filters are for gravimetric analysis and the preparation of samples for instrumental analysis.

The three formats available are:
- Ashless quantitative filter papers
- Hardened low ash quantitative filter papers
- Hardened ashless quantitative filter papers

Use the decision tree to identify the filter paper that meets your needs



GR=Grade

Typical Properties of Whatman cellulose filter papers

Qualitative filter papers

Grade	Nominal particle retention in liquid (µm)	Filtration speed (approx) Herzberg (s)	Typical thickness (µm)	Basis weight (g/m²)	Grade for pre pleated version	Flow – aspect
Standard qualitative cellulose filter papers						
1	11	150	180	88		Medium
2	8	240	190	103	2V	Medium
3	6	325	390	187		Medium-thick
4	20-25	37	205	96		Very fast
5	2.5	1420	200	98	5V	Slow
6	3	715	180	105		Medium to slow
595	4-7	80	150	68	$595^{1/2}$	Medium to fast – thin
597	4-7	70	180	85	$597^{1/2}$	Medium to fast
602h	<2	375	160	84	$602h^{1/2}$	Slow
Qualitative wet strengthened cellulose filter papers						
113	30	28	420	125	113V	Fast – creped
114	25	38	190	77	114V	Fast – smooth
91	10	70	205	71		Creped
1573	<2	700	140	92	$1573^{1/2}$	Slow

Quantitative filter papers

Grade	Nominal particle retention in liquid (µm)	Filtration speed (approx)	Typical thickness (µm)	Basis weight (g/m²)	Ash content	Flow – aspect
Ashless quantitative cellulose filter papers						
40	8	340	210	95	0.007%	Medium
41	20	54	220	85		Fast
42	2.5	1870	200	100		Slow
43	16	155	220	95		Medium to fast
44	3	995	180	80		Slow to medium
589/1*	12-25	25	190	80	0.01%	Fast
589/2*	4-12	70	190	85		Medium to fast
589/3	<2	750	150	84		Slow
Hardened low ash quantitative cellulose filter papers						
50	2.7	2685	115	97	0.015%	Slow
52	7	235	175	101		Medium
54	22	39	185	92		Fast
Hardened ashless quantitative cellulose filter papers						
540	8	200	115	88	0.006%	Medium
541	22	34	175	82		Fast
542	2.7	2510	185	93		Slow

* Pre-pleated versions available

Maximum practical volumes of circle sizes (quadrant folded)

Volume (ml)	15	20	35	75	135	300
Filter Diameter (mm)	90	110	125	150	185	240

Ordering information – Qualitative filter papers - 100/pack

Diameter	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.
Qualitative	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 595	Grade 597	Grade 602H
42.5 mm	09805A	09810A		09825J	09830G	09831A			
55 mm	09805B	09810B	09820H	09825K	09830H			09924172	
70 mm	09805C	09810C	09820J	09825A	09830K	TBD		09924173	
90 mm	09805D	09810D	09820A	09825B	09830A	09831D		09924174	
110 mm	09805E	09810E	09820B	09825C	09830B	09831E	09924160	09924175	
125 mm	109805F	09810F	09820C	09825D	09830C	09831F	09924161	09924176	09924302
150 mm	09805G	09810G	09820D	09825E	09830D	09831G	09924162	09924177	09924303
185 mm	09805H	09810H	09820E	09825F	09830E	TBD		09924178	09924304
240 mm	09805J	09810J	09820F	09825G	09830F	09831J		09924179	09924305
Qualitative wet strengthened	Grade 91*	Grade 113	Grade 114	Grade 1573					
90 mm		09853A	09833D						
110 mm		09853B							
125 mm		09853C	09833F						
150 mm	09927547	09853D	09833G	09927202					
185 mm	09927883	09853E	09833H	09927203					
240 mm	09927509	09853F	09833J						
Qualitative pre-pleated	Grade 2V	Grade 113V	Grade 114V	Grade 595$^{1/2}$	Grade 597$^{1/2}$	Grade 602h$^{1/2}$	Grade 1573$^{1/2}$		
70 mm				09927173	09924181				
90 mm				09927174	09924182	09924306			
110 mm				09924163	09924183				
125 mm	09832A	09832K	09834A	09924164	09924184	09924307	22093872		
150 mm	09832B	09832L	09834B	09924165	09924185	09924308	0994729		
185 mm	09832C	TBD	09834C	09924166	09924186	09924309	09927208		
240 mm	09832D	NC0283998	09834D	09924167	09924187	09924310	09927209		

Ordering information – Quantitative filter papers 100/pack

Diameter	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.
Ashless	Grade 40	Grade 41	Grade 42	Grade 43	Grade 44	Grade 589/1	Grade 589/2	Grade 589/3
90 mm	09845C	09850B	09855B	09856J	09860B	09924100	09924111	
110 mm	09845D	09850C	09855C	09856K	09860C	09924101	09924112 09924117	09924119
125 mm	09845E	09850D	09855D	09856L	09860D	09924102	09924113	09924120
150 mm	09845F	09850E	09855E	09856M	09860E	09924103 09927169	09924114 09924118	09924121
185 mm	09845G	09850L	09855F	09856N	09860G	09924104	09924115	09924122
240 mm	09845K	09850M	09856B				09924116	
Hardened and Hardened ashless	Grade 50	Grade 52	Grade 54	Grade 540	Grade 541	Grade 542		
90 mm	09865C	09866D	09868A	09869F	09851B	09852F		
110 mm	09865D	09866E	09868B	09869G	09851C	09852G		
125 mm	09865E	09866F	09868C	09869H	09851D	09852H		
150 mm	09865F	09866G	09868D	09869J	09851E	09852J		
185 mm	09865G		09868H	09869K	09851K	09852K		
240 mm	09865H	09866J	09868J	09869L	09851L	TBD		

*Grade 91: 1000 filters/pack - P = pre-pleated

Glass fiber filters

We provide Whatman binder free glass microfiber filters manufactured from 100% borosilicate glass for use in many applications such as general clarification, dissolution testing or prefiltration.

Features and benefits:

- Depth filters
- Fast flow rates
- High loading capacity
- Retention of very fine particles, extending into the sub-micron range

Fig 16: Whatman binder free glass fiber filters.

Typical properties of glass fiber filters

Product	Filtration speed	Particle retention in liquid (µm)	Typical thickness (µm)	Basic weight (g/m²)
Grade GF/A	Fast	1.6*	260	53
Grade GF/B	Medium to fast	1.0*	675	143
Grade GF/C™	Medium to fast	1.2*	260	53
Grade GF/D	Fast	2.7*	675	121
Grade GF/F	Medium	0.7*	420	75
GMF 150 1 µm - Multilayer	Medium to fast	1.2*	730	139

*Particle retention rating at 98% efficiency

Ordering information - Glass fiber filters - 100/pack

Diameters **	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.
Glass fiber	Grade GF/A	Grade GF/B	Grade GF/C	Grade GF/D	Grade GF/F	Grade GMF 150 1 µm
25 mm	0987412A	0987422A	0987432A	0987444	0987464	
42.5 mm	0987414	0987424	0987434	0987446B	0987466	
47 mm	0987414A	0987424A	0987435	0987448	0987471	0987482
55 mm	0987416	0987426	0987436	0987446C	0987468	
70 mm	0987416A	0987426A	0987438	0987447	0987472	
90 mm	0987416B	0987426B	0987439	0987447A	0987473	099165

**Other grades and dimensions are also available—please contact your Fisher representative for more information

Autovial™ Syringeless filters

Autovial syringeless filters are preassembled filtration devices for removing particulates from samples. They replace syringes & syringe filters with a single, disposable device simplifying your filtration step.

Ordering information - Autovial syringeless filters - 5ml capacity

Pore size	Code no.	Code no.	Code no.	Code no.	Quantity
Membrane type	PTFE	PVDF	Nylon	GMF	
0.2 µm	0992113				50/pack
0.45 µm	0992118	0992115	0992117	0992120	50/pack

Fig 17: Autovial 5 syringeless filter.

Microbiological testing

Sterile membrane filters for microbiology

GE Healthcare provides a wide and versatile range of Whatman membrane filters for membrane filtration-based microbiology that consistently deliver high-quality performance.

- Cellulose mixed ester membranes—ME Standard type and ME 25 Select with improved recovery rate
- Cellulose nitrate membranes—MicroPlus type

These membranes are sterile, packed individually, and available in two formats:

- Standard format
- STL format for use with a membrane dispenser. They are compatible with most commercially available membrane dispensers, including GE Healthcare's membrane dispenser (see below)

Membranes are also available in black-plain and black-gridded formats.

Fig 18: STL membranes for use with a membrane dispenser.

Membrane dispenser saves time

Whatman membrane-butler: with each turn, a membrane filter is ejected from its sterile packaging and it can be removed easily with a pair of tweezers as shown in figure 19.

Description	Code no.	Quantity
Membrane Butler - Manual version	09927267	1/pack

Fig 19: Membrane-Butler membrane dispenser.

GE Healthcare also offers filtration manifolds and funnels for microbiology. Please contact your Fisher representative.

Ordering information - sterile membrane filters

Membrane type	Material	Pore size	For membrane dispenser?	Code no. Diam 47 mm	Code no. Diam 50 mm	Quantity
ME type	Cellulose mixed ester	0.2 µm	No	09806212	09806213	100/pack
		0.2 µm	Yes	09806214	09806215	400/pack
		0.45 µm	No	09806216	09927794	100/pack
		0.45 µm	Yes	12007320	09927366	400/pack
ME25 Select	Cellulose mixed ester (improved recovery)	0.45 µm	No	09800951	09800952	100/pack
		0.45 µm	Yes	09800954	09800953	400/pack
Microplus	Cellulose nitrate	0.45 µm	No	09806209	09806210	100/pack
		0.45 µm	Yes	09927465	09927468	400/pack

The membranes listed above are white with a black grid—other membrane colors and pore sizes are available. Please contact your local Fisher representative.

More than filtration

Essential laboratory accessories

In addition to the filtration consumable range, we provide a comprehensive range of accessories for routine work in your laboratory. The table below shows a selection of the products we offer.

1PS phase separator

Grade 105 lens cleaning tissue

Benchkote™ protection paper

pH papers

Vacu-Guard Pump protection filter

Description	Product name	Dimension	Code no.	Qty/pack
Phase separation paper •Automatic cut-off: Separatory Funnel Replacement •Ease of use: No special training required	1PS Phase separator paper	Diam. 125 mm Diam. 150 mm	0987454 0987456	100 100
Optical lens cleaning tissue •For removal surface moisture and grease from lenses and other optical surfaces which can be easily scratched if you do not clean them with a very soft surface	Grade 105	100 × 150 mm 200 × 300 mm	08777100 09800973	25 wallets of 25 sheets 100
Benchkote bench protection papers •High-quality, smooth, absorbent Whatman paper •Quickly absorbs liquid spills and protects the working surface •Benchkote Plus is thicker and more absorbent	Benchkote Benchkote Plus	460 x 570 mm 460 x 50 mm 500 x 600 mm 600 mm x 50 m	12007180 12007182A 12007183A 12007183B	50 1 reel 50 1 reel
Weighing papers •Designed for weighing and transferring samples safely and reliably •Minimized influence on analytical results	Grade 2122 Grade B-2 Sheets	100 x 100 mm 3 x 3 inch	09924209 09924203	500 500
Antibiotic assay papers •For determining the type of causal agent of infectious diseases and checking their sensitivity to antibiotics and chemotherapeutic agents in vitro based on the inhibition zone determination method	Antibiotic Assay Discs	6 mm	05711	1000
pH Indicator Papers •Range of pH indicator and test papers for the rapid determination of pH values in many applications	Colour Bonded, 0.0 to 14.0 range Standard Full Range, Reel, 1.0 to 14.0 range Standard Narrow Range, Reel, 4.0 to 7.0 range	6 x 80 mm 7 mm x 5 m 7 mm x 5 m	0987617 0987570 0987572	100 strips 1 1
Pump protection filters •Protects vacuum pump systems from aqueous aerosols. Hydyrophobic PTFE membranes retain 99.99% or airbone particles > 0.1 µm	Vacu-Guard	50 mm	0974475	10

For more product information, please contact your Fisher presentative and technical support.

Discover GE Healthcare Pharmacopeia-compatible spectrophotometers

Ultrospec spectrophotometers are dual-beam UV Visible spectrophotometers for use in high specification laboratories. Variable bandwidth capability and custom calculation facilities support method development.

- 1 nm or variable bandwidth supports European Pharmacopeia compatibility
- 21 CFR part 11 support through Datrys CFR software (optional)
- High-performance dual-beam wavelength range 190 to1100 nm

Contact your Fisher representative to get more information on our range of spectrophotometers

Fig 20: Ultrospec 9000 stand-alone instrument.

Ask us about bioprocessing and research solutions

In addition to the range of products suitable for quality control laboratories, we provide expertise and tools for a wide range of applications, including basic research, drug discovery research, and tools to support large-scale manufacturing of biopharmaceuticals.
This includes:

- Bioprocessing solutions for upstream and downstream operations including process-scale filtration applications
- Protein and cell analyses products that support drug discovery from target identification to lead optimization and predictive toxicity testing
- Investigational protein and cell analyses to understand the cause(s) of diseases
- Nucleic acid research tools
- Preparative protein purification and research tools
- Cell bioprocessing for cell therapy (i.e., the separation, isolation, and expansion of cells)

BioProcess™ filters and systems support process-scale filtration applications, including clarification, sterile filtration and UF/DF operations.

GE Healthcare protein and cell analysis equipment provide deep insights and early predictions of lead efficacy and safety.

Chemical compatibility of membranes and housings

Solvent	ANP	CA	CN	PC	PE	GMF	NYL	PP	DpPP	PES	PTFE**	PVDF	RC
Acetic Acid, 5%	R	LR	R	R		R	R	R	R	R	R	R	R
Acetic Acid, Glacial	R	NR	NR			R	LR	R	R	R	R	R	NR
Acetone	R	NR	NR	NR	R	R	R	R	R	NR	R	NR	R
Acetonitrile	R	NR	NR			R	R	R	R	NR	R	R	R
Ammonia, 6N	NR		NR	NR	LR	LR	R	R	R	R	R	LR	LR
Amyl Acetate	LR	NR	NR	NR	R	R	R	R	R	LR	R	LR	R
Amyl Alcohol	R	LR	LR			R	R	R	R	NR	R	R	R
Benzyl Alcohol*	R	LR	LR	LR	R	R	LR	R	R	NR	R	R	R
Butyl Alcohol	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
Chloroform*	R	NR	R	NR	R	R	NR	LR	LR	NR	R	R	R
Chlorobenzene*	R		LR	NR		R	NR	LR		NR	R	R	R
Citric Acid						R	LR	R		R	R	R	R
Cyclohexanone	R	NR	NR			R	NR	R	R	NR	R	R	R
Cyclohexane*	R	NR	NR	R	R	R	NR	NR	NR	NR	R	R	R
Diethyl Acetamide		NR	NR			R	R	R	R		R	NR	R
Dimethyl Formamide	LR	NR	NR			R	R	R	R	NR	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	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	LR	R
Ethyl Acetate	R	NR	NR	NR	R	R	R	R	R	NR	R	NR	R
Ethylene Glycol	R	LR	LR	R	R	R	R	R	R	R	R	R	R
Formaldehyde*	LR	LR	R	R	R	R	R	LR	LR	R	R	R	LR
Hexane	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	NR
Isobutyl Alcohol	R	LR	LR	R	R	R	R	R	R		R	R	R
Isopropyl Alcohol	R	R	LR			R	R	R	R		R	R	R
Methanol	R	R	NR	R	R	R	R	R	R	R	R	R	R
Methyl Ethyl Ketone	R	LR	NR	NR	R	R	R	R	R	NR	R	NR	R
Methylene Chloride*	R	NR	LR			R	NR	LR	LR	NR	R	R	R
Nitric Acid, Conc*		NR	NR	LR	NR	R	NR	NR	NR	NR	R	R	NR
Nitric Acid, 6N*		LR	LR			R	NR	LR	LR	LR	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
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	NR	R
Sodium Hydroxide, 6N	NR	NR	NR	NR	NR	NR	LR	R	R	R	R	NR	NR
Sulfuric Acid, Conc*	NR	NR	NR	NR	NR	R	NR	NR	NR	NR	R	NR	NR
Tetrahydrofuran*	R	NR	NR			R	R	LR	LR	NR	R	R	R
Toluene*	R	LR	R	NR	R	R	LR	LR	LR	NR	R	R	R
Trichloroethane*	R	NR	LR	NR	R	R	LR	LR	LR	NR	R	R	R
Trichloroethylene*	R		R			R	NR	LR	LR	NR	R	R	R
Water	R	R	R	R	R	R	R	R	R	R	R	R	R

R = Resistant; LR = Limited Resistance; NR = Not Recommended; * = Short Term Resistance of Housing
The above data is to be used as a guide only. Testing prior to application is recommended.
** = membrane may need pre-wetting with isopropanol/methanol if filtering a polar liquid

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; PTFE =Polytetrafluoroethylene; PVDF = Polyvinylidene Difluoride; RC= Regenerated Cellulose

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