

Quality matters

Whatman™ filtration products for
pharmaceutical quality control.

Great savings

Support

Reliability

Reproducibility

Confidenc

Productivity



Distributor
GE Healthcare

HPLC/UHPLC

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.

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



Fig 1: 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.

Ordering information - SPARTAN syringe filters

Membrane	Pore size	Cat. No.			Quantity
		13 mm diameter	13 mm diameter with mini-tip	30 mm diameter	
Regenerated cellulose	0.2 µm	52844-782	52844-786	97005-228	100/pack
Regenerated cellulose	0.2 µm	97005-224	97005-226	97005-230	500/pack
Regenerated cellulose	0.45 µm	52844-780	52844-784	97005-232	100/pack
Regenerated cellulose	0.45 µm	97005-220	97005-222	97005-234	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.

Features and benefits

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



Fig 2: 30 mm and 13 mm diameter ReZist syringe filters.

Ordering information – ReZist syringe filters

Membrane	Pore size	Cat. No.		Quantity
		13 mm diameter with mini-tip	30 mm diameter	
PTFE	0.2 µm	14224-462	14224-464	100/pack
PTFE	0.2 µm		10035-150	500/pack
PTFE	0.45 µm	10035-172	10035-152	100/pack
PTFE	0.45 µm		10035-154	500/pack
GF 92 (glass)	> 1 µm		10035-164	100/pack
GF 92 (glass)	> 1 µm		10035-166	500/pack

Whatman GD/X

Whatman GD/X is excellent for difficult to filter samples that are heavily laden with particles.

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 mid-operation
- ▶ **Less hand force required:** The pre-filter layer allows samples to be filtered with less hand force, minimizing operator fatigue

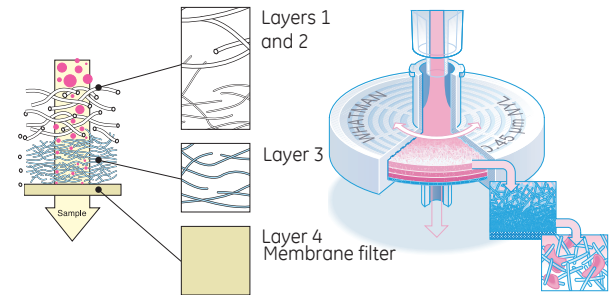


Fig 3: Whatman GD/X syringe filters contain several filtration layers that substantially reduce blockage and increase volume throughput. This is a schematic representation of Whatman GD/X features only.

Ordering information - GD/X syringe filters

Pore size	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Quantity
GD/X 25 mm with glass fiber prefilter								
Membrane type	Nylon	PVDF	PTFE	PP	PES	RC	CA	
0.2 µm	28138-154	28138-158	28138-162	28138-170	28138-166	89233-780	28138-174	150 /pack
0.45 µm	28138-156	28138-160	28138-164	28138-172	28138-168	89233-782	28138-176	150 /pack
0.2 µm	28138-192	28138-196	28138-200		89233-778			1500 /pack
0.45 µm	28138-194	28138-198	28138-202	14005-864	14217-554	89233-784	80087-208	1500 /pack

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 4: Puradisc syringe filters.

Ordering information - Puradisc syringe filters, 25 mm*

Pore size	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Quantity
Membrane type	Nylon	PVDF	PTFE	PP	PES	
0.2 µm	28205-510	89233-770	28137-932	28137-958	28137-942	200/pack
0.45 µm	28205-512	70240-170	28137-934	28137-960	28137-944	200/pack
0.2 µm					6759-2502	300/pack
0.45 µm	28205-522					500/pack
0.2 µm	28205-530		70240-162	28137-974	14233-762	1000/pack
0.45 µm	28205-532	70240-174	70240-160	28137-967	28455-248	1000/pack

*please contact your VWR Sales Representative for other diameters and pore sizes.

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 polypropylene 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 5: Mini-UniPrep glass (left) and plastic versions. Once compressed, the dimensions are equivalent in size to 12 mm x 32 mm vial.

Ordering information - Mini-UniPrep with polypropylene housing

Pore size	Housing	Cap	Cat. No.		Cat. No.		Cat. No.		Quantity
			PTFE	PVDF	Nylon	PP	RC	PES	
0.2 µm	Translucent	Standard	14224-946	14224-978	14224-976	14224-930	97015-564	14224-914	100/pack
0.45 µm	Translucent	Standard	28137-758	28137-762	28137-754	28137-766	97015-562	10147-936	100/pack
0.2 µm	Amber	Standard	84009-508	84009-504	84009-506	84009-512		84009-510	100/pack
0.45 µm	Amber	Standard	83009-802	84009-514	89233-786	83009-806		83009-804	100/pack
0.2 µm	Translucent	Slit septum	12000-528	12000-524	12000-526	12000-532		12000-530	100/pack
0.45 µm	Translucent	Slit septum	83009-816	83009-808	83009-814	83009-820			100/pack

Mini-UniPrep G2 Syringeless Filter with inner glass storage vial

Features and benefits

- ▶ 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 6 and 7



Mini-UniPrep Syringeless Filter Polypropylene housing

- ▶ Polypropylene housing
- ▶ Use with 6 position multicompressor



Fig 7: The multicompressor of the Mini-UniPrep polypropylene version holds 6 vials.

Fig 6: 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.

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

Pore size	Housing	Cap	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Quantity
	Membrane type		PTFE	PVDF	Nylon	PP	
0.2 µm (HC)	Translucent	Standard	89234-956	89234-964	89234-970	89234-974	100/pack + HC
0.2 µm	Translucent	Standard	89234-954	89234-962		89234-972	100/pack
0.45 µm (HC)	Translucent	Standard	89234-960	89234-968			100/pack + HC
0.45 µm	Translucent	Standard		89234-966			100/pack
0.2 µm (HC)	Amber	Standard	89234-976	89234-978			100/pack + HC
0.2 µm (HC)	Translucent	Slit septum	89234-980				100/pack + HC
0.45 µm (HC)	Translucent	Slit septum	89234-982				100/pack + HC

HC = Includes one Hand Compressor

Ordering information - Mini-UniPrep Compressors

Compressors suitable for	Description	Cat. No.	Quantity
	Multi Compressor - 8 positions (includes 1 Tray)*	89499-526	1/pack
	Multi Compressor Tray*	89499-528	1/pack
Mini-UniPrep (polypropylene vial)	Multi Compressor - 6 positions	14227-832	1/pack

Roby 25 Syringe filters for automated tablet dissolution testing

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

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



Fig 8: Roby 25 syringe filters.

Ordering information - Roby 25 mm syringe filters

Membrane/glass fiber filt	Pore size	Cat. No.	
		200/pack*	1000/pack
Nylon**	0.45 µm	89042-084	10035-174
Nylon with GF92 prefilter	0.45 µm	89042-088	89042-090
Regenerated cellulose	0.45 µm	89042-092	89042-094
Regenerated cellulose with GF92 prefilter	0.45 µm	89042-096	89042-098
Cellulose acetate with GF92 prefilter*	0.45 µm	89042-100	
Glass fiber GF5	0.7 µm	89042-080	89042-082
Glass fiber GF9	1 µm	89042-076	89042-078

*8 tubes of 25 pieces each

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

Please refer to page 12 for more information on our glass fiber grades such as GF/F.

Whatman 850-DS 8-channel filter plates

Whatman 850-DS 8-channel filter plates save time and eliminate errors associated with manual sampling. Whatman 850-DS 8-channel filter plates developed in conjunction with Agilent™ offer you the following advantages in your dissolution workflow.

Features and benefits

- ▶ Whatman 850-DS 8-channel plate allows you to process either 6 or 8 samples at one time economically.
- ▶ The novel design of the Agilent system and use of the filter plates ensures filtration of the samples with reliable alignment of the liquid path, reducing the risk of jamming or leaks through the filtration step. The Agilent equipment also allows replacement media to be added to the baths after sample time points to avoid saturation of your dissolution bath.
- ▶ Easy to validate the new filter plate format. The filter discs in the plates are made with the same housing and membranes as our 25 mm Puradisc syringe filters.

Whatman 850-DS 8-channel filter plates are designed exclusively for use with the Agilent 850-DS dissolution testing system.

Ordering information - Whatman 850-DS 8-channel filter plates

Description	Cat. No.
850-DS 8-Channel Filter Plate 0.45 µm PES 50/PK	10141-516
850-DS 8-Channel Filter Plate 0.2 µm PTFE 50/PK	7707-3400
850-DS 8-Channel Filter Plate 0.2 µm Nylon 50/PK	7707-3500
850-DS 8-Channel Filter Plate 0.2 µm PES 50/PK	7707-3600



Fig 9: Whatman 850-DS 8-channel filter plates



Fig 10: Agilent 850-DS Dissolution Sampling Station

ICP & Ion Chromatography

GD/XP syringe filters

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

Features and benefits

- ▶ 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 11: GD/XP syringe filter.

Ordering information - GD/XP syringe filters

Pore size	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Quantity
GD/XP with polypropylene prefilter								
Membrane type	Nylon	PVDF	PTFE	PP	PES			
0.45 µm	28137-976	28137-980	28137-984	28137-988	28137-996			150/pack
0.45 µm	10035-524	28137-982		28137-994*	10035-526			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.

Features and benefits

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



Fig 12: Anotop IC syringe filters.

Ordering information - Anotop IC Syringe filters

Membrane	Pore size	Quantity	Cat. No.
Anotop 10 IC (10 mm diameter)			
Aluminium oxide	0.2 µm	50/pack	28138-053
Aluminium oxide	0.2 µm	100/pack	10035-508
Aluminium oxide	0.2 µm	200/pack	10035-510
Aluminium oxide	0.2 µm blister	250/pack	28138-055
Anotop 25 IC (25 mm diameter)			
Aluminium oxide	0.2 µm	200/pack	28297-720

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

Ordering information - Membrane filters (circles)

Membrane	Compatibility*	Pore size	Cat. No.		Quantity
			47 mm diameter	50 mm diameter	
Nylon	Aqueous and organic solutions (3<pH<10)	0.2 µm	28152-896	10035-002	100/pack
		0.45 µm	28152-899	10035-004	100/pack
Regenerated cellulose	Aqueous and organic solutions	0.2 µm	97010-104	10034-996	100/pack
		0.45 µm	97010-098	10034-992	100/pack
PTFE	Organic solutions	0.2 µm	89187-118	89187-120	50/pack
		0.45 µm	89187-114	89187-116	50/pack

*Refer to table of Chemical Compatibility of Membranes on page 13.

Other membrane materials (such as polycarbonate, cellulose nitrate) with a wide variety of pore sizes, and diameters are available—please contact your VWR Sales 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	Cat. No.
GV050/2 vacuum filter holder 1/pack	14233-354



Fig 14: 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 15: Pre-pleated filter format.



Fig 16: 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

Quantitative cellulose filter papers

Whatman quantitative filters are for gravimetric analysis and the preparation of samples for instrumental analysis. The three formats available are:

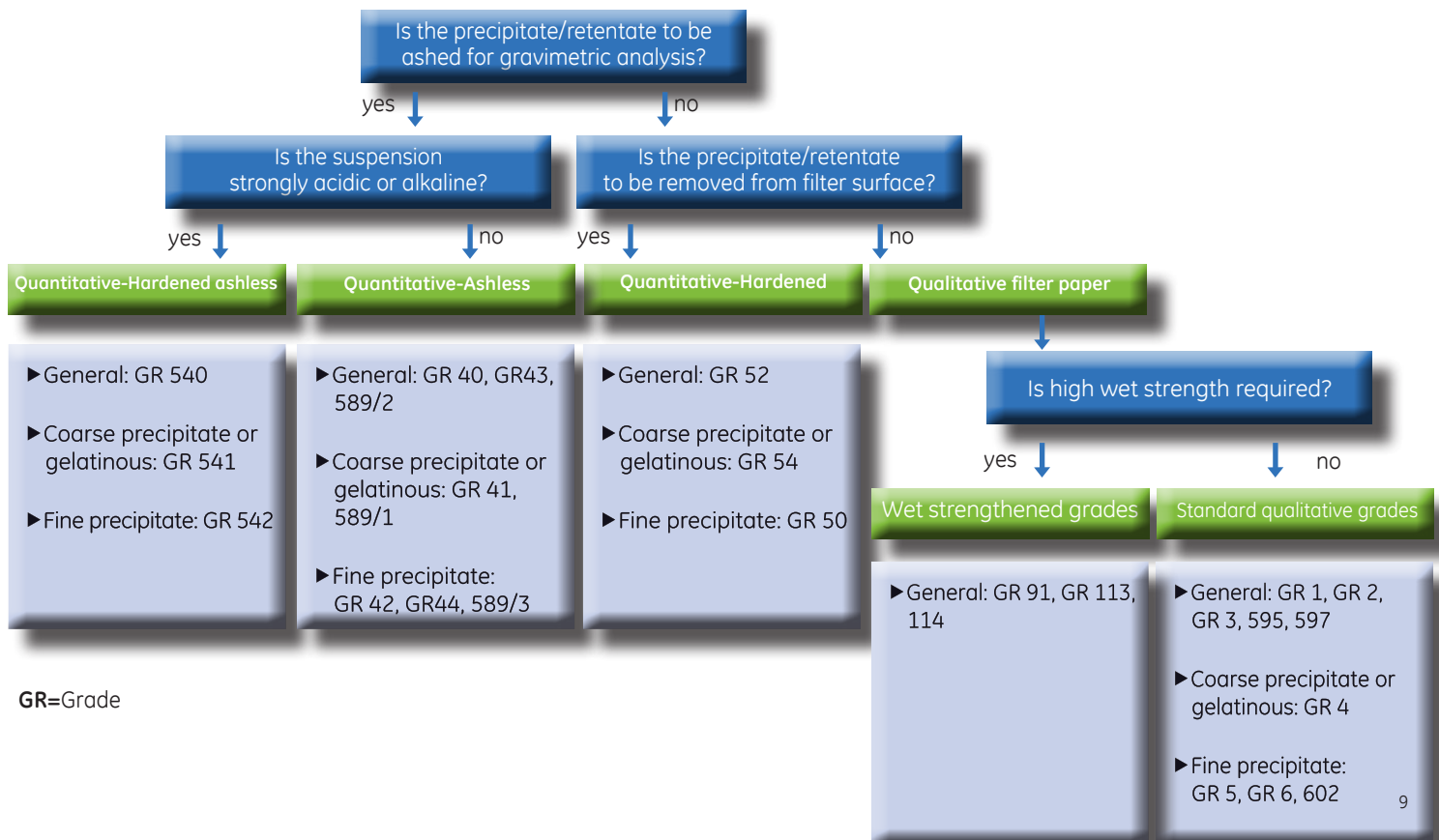
- ▶ Ashless quantitative filter papers
- ▶ Hardened low ash quantitative filter papers
- ▶ Hardened ashless quantitative filter papers

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

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



Typical Properties of Whatman cellulose filter papers

Quantitative filter papers

Grade	Nominal particle retention in liquid (µm)	Filtration speed (approx) Herzberg	Typical thickness (µm)	Basis weight (g/m ²)	Ash content	Flow – aspect
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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 – Quantitative filter papers 100/pack

Diameter	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
Ashless	Grade 40	Grade 41	Grade 42	Grade 43	Grade 44	Grade 589/1	Grade 589/2	Grade 589/3
90 mm	28475-048	28478-024	28480-081	70240-050	28482-021	10034-602	10034-616	
110 mm	28475-060	28478-046	28480-106	28481-295	28482-043	14224-460	10034-618	14224-450
125 mm	28475-081	28478-068	28480-128	28481-302	28482-065	14224-458	10034-620	14224-444
150 mm	28475-106	28478-080	28480-140	70240-046	28482-070	14224-456	28427-103	89233-654
185 mm	28475-128	28478-104	28480-161	28297-320	28297-334	14224-454	10034-622	10034-630
240 mm	28475-140	28297-291	28480-182				10034-624	

Hardened and Hardened ashless

	Grade 50	Grade 52	Grade 54	Grade 540	Grade 541	Grade 542		
90 mm	28485-063	28487-047	28489-042	28297-368	28479-049	28297-392		
110 mm	28485-085	70240-066	28489-064	28297-370	28479-060	28297-394		
125 mm	28485-100	28487-080	28489-086	28297-372	28479-082	28297-396		
150 mm	28485-121	28487-105	28489-100	28297-374	28479-107	28297-398		
185 mm	28485-143		28489-122	28297-376	28479-129	28297-400		
240 mm	28485-165	28297-354	28489-144	10035-282	28479-130	10147-894		

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/m ²)	Grade for pre pleated version	Flow – aspect
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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

Ordering information – Qualitative filter papers - 100/pack

Diameter	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
Qualitative	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 595	Grade 597	Grade 602H
42.5 mm	28450-026	28455-030		28460-019	70240-034	10147-902			
55 mm	28450-048	28455-041	28456-022	28460-030	28462-025			10034-666	
70 mm	28450-070	28455-063	28456-043	28460-041	28462-047	10147-904		11008-542	
90 mm	28450-081	28455-085	28456-065	28460-063	28462-069	10147-988		14224-440	
110 mm	28450-106	28455-110	28456-087	28460-085	28462-080	28462-170	10034-642	11008-544	
125 mm	28450-128	28455-121	28456-101	28460-110	28462-104	10147-990	10035-780	14224-442	10034-698
150 mm	28450-150	28455-142	28456-123	28460-120	28462-126	10147-992	28430-109	14224-436	10034-700
185 mm	28450-160	28455-164	28456-145	28460-142	28462-148	10147-994		89233-650	10034-702
240 mm	28450-182	28455-186	28456-167	28460-164	28462-160	10035-236		10034-668	10034-704

Qualitative wet strengthened

Grade 91* Grade 113 Grade 114 Grade 1573

90 mm		28297-254	70240-094						
110 mm		10147-906							
125 mm		28297-258	70240-074						
150 mm	10035-700	28297-260	28464-994	11008-574					
185 mm	10035-704	28297-262	70240-076	10034-724					
240 mm	10035-708	10147-908	70240-078						

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				10035-782	14223-590				
90 mm				10035-784	10034-670	10192-062			
110 mm				10035-786	10034-672				
125 mm	28465-022	28297-270	28467-061	10034-644	14224-424	10034-706	10034-728		
150 mm	28465-044	28297-272	28467-083	10034-646	14224-640	74330-460	10034-730		
185 mm	28465-066	28297-274	28467-108	10034-648	14223-536	10034-708	14224-412		
240 mm	28465-088	28297-276	28467-120	10034-652	14224-420	10034-710	14224-416		

*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 17: 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/m ²)
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 **	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
Glass fibre	Grade GF/A	Grade GF/B	Grade GF/C	Grade GF/D	Grade GF/F	Grade GMF 150 1 µm
25 mm	28497-110	28497-437	28497-652	70240-134	28497-925	
42.5 mm	28497-142	28497-459	28497-685	28497-867	28497-947	
47 mm	28497-153	28497-460	28497-696	28497-725	28497-958	28495-612
55 mm	28497-164	28497-470	28497-700	28497-889	28497-969	
70 mm	28497-186	28497-481	28497-721	28497-890	28497-970	
90 mm	28497-200	28497-492	28497-743	28161-491	28497-972	28495-616

**Other grades and dimensions are also available—please contact your VWR Sales 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	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Quantity
Membrane type	PTFE	PVDF	Nylon	GMF	
0.2 µm	28296-012				50/pack
0.45 µm	28296-030	28296-024	28296-028	80089-522	50/pack



Fig 18: Autovial 5 syringeless filter.

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

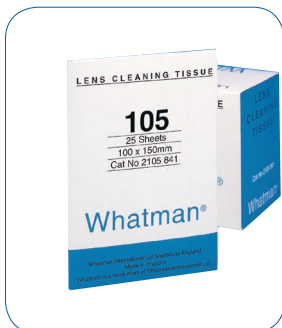
ANP = Anopore; CA = Cellulose Acetate; CN = Cellulose Nitrate; DpPP = Polypropylene Depth Filter; GMF = Glass Microfiber; NYL = Nylon; PC = Polycarbonate; PE = Polyester; PES = Polyethersulfone; PP = Polypropylene; PTFE = Polytetrafluoroethylene; PVDF = Polyvinylidene Difluoride; C= Regenerated Cellulose

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



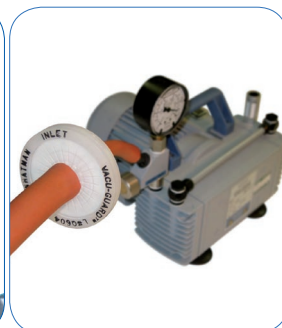
Grade 105 lens cleaning tissue



Benchkote™ protection paper



pH papers



Vacu-Guard™ Pump protection filter

Description	Product name	Dimension	Cat. 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	28491-146	100
		Diam. 150 mm	28491-168	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	97002-542	25 wallets of 25 sheets
		200 × 300 mm	52846-108	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	460 × 570 mm	52855-001	50
		460 mm × 50 m	52856-004	1 reel
	Benchkote Plus	500 × 600 mm	52854-994	50
		600 mm × 50 m	52857-997	1 reel
Weighing papers •Designed for weighing and transferring samples safely and reliably •Minimized influence on analytical results	Grade 2122	100 × 100 mm	10035-658	500
		Grade B-2 Sheets	3x 3 inch	28498-002
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	89007-048	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	6 × 80 mm	28297-426	100 strips
		Standard Full Range, Reel, 1.0 to 14.0 range	14217-670	1
		Standard Narrow Range, Reel, 4.0 to 7.0 range	14217-674	1
Pump protection filters •Protects vacuum pump systems from aqueous aerosols. Hydrophobic PTFE membranes retain 99.99% or airborne particles > 0.1 µm	Vacu-Guard	50 mm	28137-858	10

For more product information, please contact your VWR Sales Representative and technical support.

Benchkote Surface Protectors

GE's Whatman Benchkote surface protector is an absorbent lab paper that protects surfaces against hazardous spills. After use, the bench protector sheet is incinerated or disposed of according to local regulations.

Features and benefits

- ▶ **Strong:** Benchkote surface protector is strong and tear resistant when wet or dry
- ▶ **Ease-of-use:** Smooth white surface can be written on with ink or pencil and lies flat
- ▶ **Clean:** Suitable for saturation with disinfectant to protect benches where pathogens and other bacteria are present
- ▶ **Disposable:** Benchkote paper can be incinerated after use



Fig 19: Benchkote Surface Protectors

Ordering information - Benchkote Surface Protectors

Description	Quantity	Cat. No.
Benchkote Surface Protector, 460 × 570mm sheet	50/pack	52855-001
Benchkote Surface Protector, 460mm × 50m reel	1/reel	52856-004
Benchkote Surface Protector, 460 × 570mm sheet	100/pack	10035-340

Benchkote Plus Surface Protectors

Benchkote Plus Surface Protector, 500 × 600 mm sheet	50/pack	52854-994
Benchkote Plus Surface Protector, 600 mm × 50m reel	1/reel	52857-997

Polycap TC Capsule filters

Dual layer polyethersulfone (PES) membrane filtration capsules provide efficient filtration for critical aqueous solutions.

Features and benefits

- ▶ 100% integrity-tested during manufacturing; results are correlated to microbial retention.
- ▶ Housing thermally fused (no surfactants or mold releasing agents).
- ▶ Integrity-testable by bubble point, pressure decay, or forward flow methods.
- ▶ PES membrane is inherently hydrophilic, has low extractables, is biosafe, has excellent flow rates and exhibits low protein binding.

Ordering information - Polycap TC Capsule filters*

Description	Pore size	Diameter	Cat. No.
Polycap TC 36 (SB inlet and outlet)	0.2/0.2 µm	36 mm	30253-226
Polycap TC 36 (SB inlet and outlet)	0.65/0.45 µm	36 mm	30253-232
Polycap TC 75 (SB inlet and outlet)	0.2/0.1 µm	75 mm	30253-240
Polycap TC 75 (SB inlet and outlet)	0.2/0.2 µm	75 mm	30253-242
Polycap TC 150 (SB inlet and outlet)	0.2/0.2 µm	150 mm	30253-258
Polycap TC 150 (SB inlet and outlet)	0.8/0.2 µm	150 mm	83009-782

*please contact your VWR Sales Representative for other diameters and pore sizes.



Fig 20: Polycap TC Capsule filters

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