GE Healthcare Life Sciences



500

400

Quality matters

Whatman[™] filters for water monitoring



Quality matters

Why does quality matter to you?

Quality matters, because you need to focus on delivering accurate results on the quality of the water sample, without worrying about the quality of the consumables you use on a daily basis.

This is why GE Healthcare Life Sciences is committed to supporting you with high-quality Whatman filters that are:

- Manufactured in ISO certified facilities
- Reproducible, supporting consistent performance
- Qualified for specific water monitoring applications (e.g., determination of suspended solids in water)

This brochure highlights the filtration solutions offered under the Whatman brand for the applications shown to the right.





Suspended solids determination



Sample preparation before chemical analysis



Membrane filtration for microbiological testing

Use our selection chart on page 3, select your application and we will guide you to the most suitable product.







Suspended solids	Method EN 872	• GF/C [™] glass fiber filter
Page 4	Method 2540D	 934-AH[™] glass fiber filter 934-AH[™] RTU[*] glass fiber filter
Dissolved heavy metals	Filtration in the lab	• GD/XP syringe filter
Page 5	Filtration in the field (e.g., ground water analysis)	 Polydisc GW disc Polycap GW capsule
Dissolved ions (Ion Chromatography) Page 6		• Anotop [™] IC syringe filter
Dissolved organic carbons (DOC) Page 6		• Puradisc Aqua syringe filter
Tests using HPLC, GC, and other analytical techniques	Hard-to-filter samples (e.g., high solid content)	• Whatman GD/X [™] syringe filter
	Low solid content samples	• Puradisc and SPARTAN™
Page 7	HPLC/GC autosampler	• Mini-UniPrep [™] syringe filter range
Bacterial count and/or detection Page 10	Membrane-based microbiology	 Membrane filters Filtration manifold AS220 Membrane dispenser

This list of applications is not exhaustive. Please contact your Thomas Scientific representative for more information * RTU = Ready To Use

Determination of suspended solids

One of the most common parameters of water quality in raw water, waste water, and effluents is suspended solids. Most standard methods for the determination of suspended solids are based on glass microfiber media.

GF/C and 934-AH glass fiber filters

These filters are widely used in applications involving suspended solids in water.

Features and benefits:

- Conform to requirements of standard methodologies: GF/C for EN 872;
 934-AH for Standard Method 2540D
- High loading capacity enabling filtration of very turbid samples
- Retention of very fine particles
- Fast flow rates



Fig 1. GF/C glass fiber filters meet the requirements of EN 872.

934-AH RTU: Ready-to-use format for time and cost savings

Features and benefits:

- Prewashed, preweighed according to 2540D
- Each pretreated filter comes in an aluminum pan, with the filter weight clearly noted
- Each pan has its own unique barcode

Method 2540D: 934-AH RTU vs traditional glass fiber filters



Ordering information -- Glass fiber filters, 100/pack

Diameter (mm)	Code no.	Code no.	Code no.
Grades	GF/C	934-AH	934-AH RTU preweighed, prewashed*
Typical particle retention (µm)**	1.2 µm	1.5 µm	1.5 µm
42.5	0898Q73	4750D35	1227Z33
47	4751K35	4750D37	1227Z34
55	0898Q71	4750D45	1227Z35
70	0898Q70	4750D50	-
90	0898Q69	4750D55	1205W37

* Each filter is supplied in an individual aluminum pan

** Particle retention rating at 98% efficiency

Analysis of dissolved heavy metals

Filtration of the water sample prior to dissolved heavy metals analysis is performed in the field at the point of sample collection, in the laboratory prior to analysis, or at both locations.

GD/XP syringe filters

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

Features and benefits:

- Prefilter made of polypropylene for minimization of ion extractables
- Integrated prefiltration with a dual-layer prefilter stack and one final 0.45 µm membrane
- Easy filtration of hard-to-filter samples



Fig 2. GD/XP syringe filters contain three filtration layers, which reduce blockage and increase volume throughput.

Ordering information -- GD/XP syringe filters

Pore size	Code no.	Code no.	Code no.	Code no.	Quantity
Membrane type	Nylon	PVDF	РР	PES	
0.45 µm	0898Y56	0898Y58	-	0898Y66	150/pack
0.45 µm	0898Y57	0898Y59	0898Y60*	0898Y67	1500/pack

*Polypropylene depth filter



Polydisc GW and Polycap GW in-line filters

Polydisc GW and Polycap GW have been developed for the preparation of larger volumes of groundwater samples for the analysis of dissolved heavy metals.





Fig 3. Polydisc GW (left) and Polycap GW (right).

Ordering information -- In-line filters

Product	Code no.	Code no.	Code no.	Code no.
Quantity	1/pack	100/pack	20/pack	50/pack
Polydisc GW Filter 50 mm, nylon with quartz fiber prefilter, 0.45 µm	-	-	1212D48	1212D49
Polycap GW 75, 0.45 µm, PES membrane	1212H04	1212H06	-	-

Analysis of dissolved ions

Filters for sample preparation prior to ion chromatography testing should feature very low levels of anion leaching.

Anotop IC syringe filters

Whatman Anotop IC filters are suitable for the preparation of samples for subsequent Ion Chromatography.

These filters contain a proprietary alumina-based Anopore™ membrane that exhibits very low levels of anion leaching (e.g., fluoride, sulfide, nitrate, nitrite) during IC testing.

Features and benefits:

- Low levels of anion leaching
- Pigment-free PP housing to eliminate sample contamination

WHATMAN PHOTOP 25 10

Fig 4. Anotop IC syringe filter.

Ordering information -- Anotop IC syringe filters

Membrane/pore size	Diameter	Quantity	Code no.
Aluminum oxide – 0.2 µm	10 mm	100/pack	1212H14
Aluminum oxide – 0.2 μm	10 mm	200/pack	1212H15
Aluminum oxide – 0.2 μm	25 mm	200/pack	1212H16

Analysis of dissolved organic carbons

Typically, organic matter content can be measured as dissolved organic carbon (DOC), which is an important component of the carbon cycle. DOC is defined as the organic matter that is able to pass through a filter, typically one with a 0.45 μ m pore size.

Puradisc Aqua 30 syringe filters

These filters are specifically designed for filtration of environmental samples prior to DOC analysis.

Features and benefits:

- The membranes used in these syringe filters are prewashed prior to assembly to reduce the organic carbon level
- Designed for aqueous samples

Ordering information -- Puradisc Aqua syringe filters

Membrane/pore size	Diameter	Quantity	Code no.
Cellulose acetate – 0.45 µm	30 mm	50/pack	1212D39
Cellulose acetate – 0.45 µm	30 mm	100/pack	1212D38
Cellulose acetate – 0.45 µm	30 mm	500/pack	1212D37



Fig 5. Puradisc Aqua 30 syringe filter.

Chemical tests using HPLC, UHPLC, and other analytical techniques

We offer a complete range of filters for sample preparation for commonly used analytical techniques in water monitoring such as:

- HPLC or UHPLC
- Continuous flow analysis
- Gas chromatography (GC)

Discover regenerated cellulose!



Suitable for filtration of both aqueous and organic samples

Use the table below in order to identify the most suitable product for your analytical technique

Туре	For low solid content sa	mples	For hard to filter samples		HPLC/GC autosamplers	
Product	Puradisc	SPARTAN	Whatman GD/X	GD/XP	Mini-UniPrep	Mini-UniPrep G2
	RHATES -		HUNTACH ST	And Design of the second secon	RC.	
Main feature	 Wide range of membranes, pore sizes and diameters 	 Regenerated cellulose membrane HPLC certified 	 For hard to filter samples 	 For hard to filter samples where analytes of interest are inorganic ions 	• All-in one filter and PLASTIC autosampler vial	 All-in one filter and GLASS autosampler vial
Pre-Filter	No	No	Multilayer glass fiber prefilter GMF150 10-1 µm GF/F 0,7 µm	Multiplayer polypropylene prefilter (20-5 µm)	No	No
Diameter	4, 13, 25, or 30 mm	13 or 30 mm	13 or 25 mm	25 mm	Once compressed e 12 mm x 32 mm via	quivalent to
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, 0.45, 0.7, 1.0, 1.2, 1.5, 2.7, 5.0 μm	0.45 µm	0.2 or 0.45 µm	0.2 or 0.45 μm
Membrane materials available	Cellulose acetate, Nylon, PES, PVDF, PP, PTFE	Regenerated cellulose	Cellulose acetate, Nylon, PES, PVDF, PP, PTFE, RC	Nylon, PES, PVDF, PP, PTFE	PTFE, RC, Nylon, PVDF, PES, PP, GMF	PTFE, Nylon, PVDF, PP

Ordering information -- Syringe filters and filter vials

ini-UniPrep v	vith poly	propylene ł	nousing							
	Pore size	Housing	Сар	Code no.	Quantity					
	Membrane	e type		PTFE	PVDF	Nylon	РР	RC	PES	
	0.2 µm	Translucent	Standard	1233W16	1233W14	1233W15	1233W18	1228K35	1233W17	100/pack
1 COLOR	0.45 µm	Translucent	Standard	1233W23	1233W19	1233W22	1233W25	1228K37	1233W24	100/pack
	0.2 µm	Amber	Standard	1233W72	1233W70	1233W71	1233W74	-	1233W73	100/pack
	0.45 µm	Amber	Standard	1233W79	1233W75	1233W78	1233W81	-	1233W80	100/pack
	0.2 µm	Translucent	Slit septum	1233W48	1233W46	1233W47	1233W50	-	1233W49	100/pack
	0.45 µm	Translucent	Slit septum	1233W55	1233W51	1233W54	1233W57	-	-	100/pack

Mini-UniPrep G2 with inner glass storage vial (hand or multicompressor required for use)

	Pore size	Housing	Сар	Code no.	Code no.	Code no.	Code no.	Quantity
	Membran	e type		PTFE	PVDF	Nylon	РР	
	0.2 µm	Translucent	Standard	1210M20	1210M24	1210M27	1210M29	100 + 1 HC
	0.2 µm	Translucent	Standard	1210M19	1210M23		1210M28	100/pack
	0.45 µm	Translucent	Standard	1210M22	1210M26	-	-	100 + 1 HC
e 1	0.45 µm	Translucent	Standard	1210M21	1210M25	-	-	100/pack
	0.2 µm	Amber	Standard	1210M30	1210M31	-	-	100 + 1 HC
	0.2 µm	Translucent	Slit septum	1210M32	-	-	-	100 + 1 HC
	0.45 µm	Translucent	Slit septum	1210M33	-	-	-	100 + 1 HC

HC = Hand Compressor

Compressors for Mini-UniPrep			
Compressor suitable for	Description	Code no.	Quantity
Mini-UniPrep G2 (glass vial)	Hand compressor - 1 position	1209C54	1/pack
	Multi Compressor - 8 positions (includes 1 tray)	1202D59	1/pack
Mini-UniPrep (plastic vial)	Multi Compressor - 6 positions	4621T36	1/pack

SPARTAN SYLIN	gemers					
	Membrane	Pore size	Code no.	Code no.	Code no.	Quantity
	Diameter		13 mm	13 mm with mini-tip	30 mm	
	Regenerated cellulose	0.2 µm	1223K03	1223J96	1223K01	100/pack
	Regenerated cellulose	0.2 µm	1223K04	1223J97	1223K02	500/pack
	Regenerated cellulose	0.45 µm	1223K05	1223J94	1223J98	100/pack
	Regenerated cellulose	0.45 µm	1223K06	1223J95	1223J99	500/pack

Puradisc syringe filters												
	Pore size	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.	Quantity				
ware to	Membrane type/diameter	Nylon 25 mm	PVDF 25 mm	PTFE 25 mm	PP 25 mm	PES 25 mm	CA 30 mm					
	0.2 μm	4650C10	1228Q72	4650C02	1232Z57	1232Z32	1212D42*	200/pack				
St. and	0.2 µm	1232Z12		1232280	1232Z65	1232273	1212D40**	1000/pack				
a an ta	0.45 µm	1228Q73	1232Z07	4650C04	1233W45°	1232Z33	1212D35*	200/pack				
*100 /pack; ** 500/pack	0.45 µm	0898Y97	1232Z08	1232Z81	1232Z66*	1232Z74	1216E13**	1000/pack				

|--|

	Pore size	Code no.	Quantity						
	Membrane type	Nylon	PVDF	PTFE	PP	PES	CA	RC	
WATAR .	0.2 µm	1231A09	1231A16	1231A22	1231A32	1231A27	1231A37	1212H46	150/pack
10 10 10	0.2 µm	1231A13	1231A19	1231A24	-	1231A55	-	-	1500/pack
"IN NYL #	0.45 µm	0898Y48	0898Y50	4620M48	1231A33	1231A28	1231A38	1212H44	150/pack
	0.45 µm	0898Y49	0898Y51	0898Y53	1231A34°	1231A56	0898Y98	1212H45	1500/pack

Pore sizeCode no.Code no.Code no.Code no.Code no.Quantity	mm diameter	e filters (polypropylene prefilter), 25 mm diameter		
	Code no. Code no. Code no. Quantity	Code no. Code no.	Pore size	
Membrane type Nylon PVDF PTFE PP PES	PVDF PTFE PP PES	Nylon PVDF	Membrane type	
	0898Y58 0898Y60 0898Y62 0898Y66 150/pack	0898Y56 0898Y58	— — — (()) 0.45 µm	
0.45 μm 0898Y57 0898Y59 0898Y65° 0898Y67 1500/pack	0898Y59 0898Y65° 0898Y67 1500/pack	0898Y57 0898Y59	0.45 μm	

Membrane filters for water filtration & mobile phase filtration applications

GE Healthcare offers a broad range of membrane materials for water filtration applications. A selection of our products for these applications are presented in the table below. Sterile membranes for microbiology are listed on page 10.



Fig 6. Whatman regenerated cellulose membranes.

Regenerated cellulose membranes - a good choice for filtration of aqueous and organic mobile phases

These membranes are compatible with most common HPLC solvents.

Ordering information -- Membranes filters circles

Membrane	Compatibility*	Pore size	Code no.	Code no.	Quantity
Diameter			47 mm	50 mm	
Regenerated cellulose	Aqueous and organic solutions	0.2 µm	1212C02	1212C03	100/pack
		0.45 µm	1212B97	1212B98	100/pack
Nylon	Aqueous and organic solutions	0.2 µm	1212C16	1212C17	100/pack
	(between pH 3 and 10)	0.45 µm	1212C19	1212C20	100/pack
PTFE	Organic solutions	0.2 µm	1212C13	1212C14	50/pack
		0.45 µm	1212C10	1212C11	50/pack
Cellulose mixed ester	Aqueous solutions	0.2 µm	1212B08	1212B09	100/pack
		0.45 µm	1212B00	1212B06	100/pack
Cellulose acetate	Aqueous solutions	0.45 µm	1212B37	1212B38	100/pack
		0.8 µm	1212B34	-	100/pack
Aluminum oxide (Anodisc™)	Aqueous and organic solutions	0.02 µm	4621Q30	-	50/pack
		0.1 µm	4621Q20	-	50/pack
		0.2 µm	1205X25	-	50/pack
Polycarbonate (Nuclepore™)	Aqueous solutions	0.2 µm	4625C25	0701V57	100/pack
		0.4 µm	4625D25	0701V56	100/pack

Other pore sizes and diameters are available - Please contact your Thomas Scientific representative for more information *Data to be used as a guide only. We recommend performing suitability testing before using a specific membrane in your application

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. It is a good choice for use with Whatman filtration membranes.

Ordering information

•		
Product	Quality	Code no.
GV050/2 vacuum filter halder	1 per pack	1212C71



Fig 7. GV050/2 vacuum filtration unit.

Microbiological monitoring of water



See the table below for a listing of membrane filters that meet the requirements of your local regulations and standards.

Membrane dispenser

With each turn a membrane filter is ejected and can be removed easily with a pair of tweezers.

- Cross contamination risks are minimized
- Membrane is dispensed rapidly



Fig 8. Membrane Butler (left) and AS220 filtration manifold mounted with 350 ml polypropylene funnel (right).

AS220 two place filtration manifold*

- Two filtration funnel volumes: 100 ml or 350 ml
- Both are usable with 47 mm or 50 mm diameter membranes
- Autoclavable polypropylene funnels (up to 50 times) for cost savings

Ordering information -- Membrane filters

STL format:

Some of our membranes are designed for use with most commercially available membrane dispensers, including GE Healthcare's Membrane Butler.



Membrane type Membrane material Pore size Color Sterile STL format Code no. Code no. Quantity Diameter 47 mm 50 mm ME type Cellulose mixed ester white 1230F27 1212B66 100/pack 0.2 µm yes no 0.2 µm white yes yes 1212B77 1212B78 400/pack 0.45 µm white 1212B62 1212B64 100/pack ves no 0.45 µm 1231K05 1231K06 400/pack white yes yes Cellulose nitrate 0.45 µm 1212B72 1212B73 100/pack Microplus white yes no 0.45 µm white 1233M09 1212B67 400/pack ves ves 0.45 µm black 1212B74 100/pack yes no 0.45 µm 1212B68 400/pack black yes yes 100/pack white 4625C25 0701V57 Polycarbonate Nuclepore 0.2 µm no no 0,4 µm white 4625D25 0701V56 100/pack no no Nylon (Polyamide) NL 0,4 µm white 1212C19 1212C20 100/pack no no

Ordering information -- Membrane dispenser

Description	Code no.	Quantity
Membrane Butler - Manual version	1228M92	1

* Please contact your Thomas Scientific representative for more information about this system

General 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

LERIS CLEANING TISSUE 105 So tissue Carl No 2100 Mil Whatman

Grade 105 lens

cleaning tissue



Benchkote[™] protection paper



pH paper



Vacu-Guard Pump protection filter

Description	Product name	Dimension	Code no.	Quantity
Phase separation paper Separatory funnel replacement: Automatic cut-off 	1PS Phase separator paper	Diam. 125 mm	XMTN133	100/pack
 Ease of use: No special training required 		Diam. 150 mm	4722C35	100/pack
Optical lens cleaning tissue • Soft tissue for removing surface moisture and	Grade 105	100 × 150 mm	1212F58	25 wallets of 25 sheets
grease from lenses and other optical surfaces		200 × 300 mm	6292B12	100/pack
Benchkote bench protection papers High-quality, smooth, absorbent Whatman paper 	Benchkote	460 x 570 mm	7310S10	50/pack
Quickly absorbs liquid spills and protect the working surface		460 mm x 50 m	7310S20	1/pack
• Benchkole Plus is thicker and more absorbent	Benchkote Plus	500 x 600 mm	7310S15	50/pack
		600 mm x 50 m	7310S25	1/pack
pH Indicator Paper • Range of pH indicator and test papers	Color Bonded, 0.0 to 14.0 range	6 x 80 mm	1219G59	100 strips, 1/pack
for the rapid determination of pH values in many applications	Standard Full Range, Reel, 1.0 to 14.0 range	7 mm x 5 m	0898Y86	1/pack
	Standard Narrow Range, Reel, 4.0 to 7.0 range	7 mm x 5 m	0898Y82	1/pack
Pump protection filters • Protects vacuum pump systems from aqueous aerosols. Hydyrophobic PTEE membranes retain	Vacu-Guard	50 mm	4651A17	10/pack
99,99% of airborne particles > 0.1 µm				

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