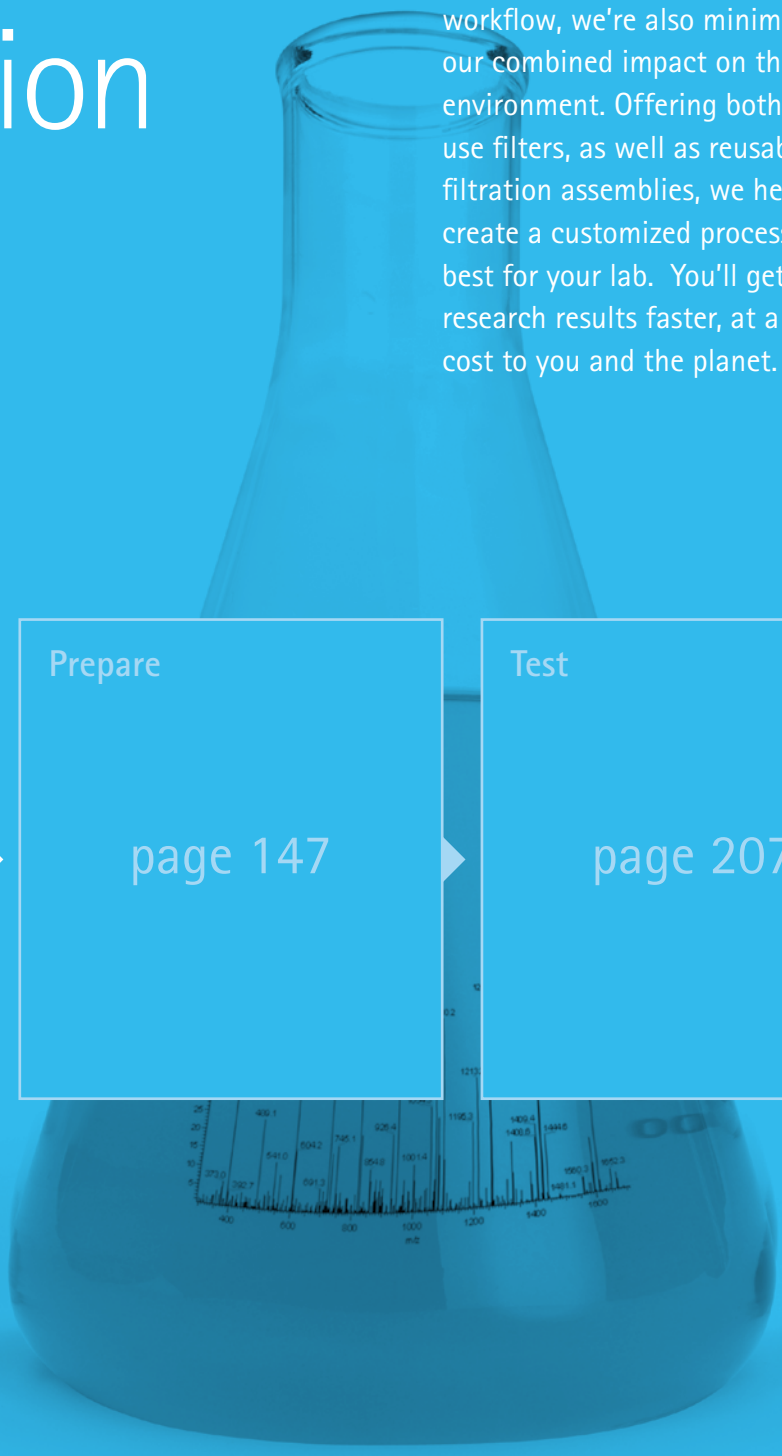
Analytical Sample Preparation

Trust Merck Millipore membrane filtration devices, chromatography columns and test kits for the collection, preparation and analysis of your most precious air or fluid samples. In building solutions for your entire analytical research workflow, we're also minimizing our combined impact on the environment. Offering both single-use filters, as well as reusable filtration assemblies, we help you create a customized process that's best for your lab. You'll get better research results faster, at a lower cost to you and the planet.



Collect

Collect samples from air, soil, water, fuel and industrial processes using our membrane filters, filter holders and solvent dispensers. Many of our sample collection devices feature broad chemical compatibility, low extractables and low analyte binding, making them ideal for sensitive analyses.

Prepare

page 147

Test

page 207

Filter Holder Selection Guide

	Glass	Stainless Steel (SS)		Plastic	
	Vacuum	Vacuum	Pressure	Vacuum	Pressure
13 mm		Epifluorescence Filter Holder (page131)  Analytical Filter Holder (page 130) 	Swinny Filter Holder (page 191) 		Swinnex® Holder (page 190)
25 mm	Microanalysis Filter Holder (page 129) 	Analytical Filter Holder (page 130) 	High Pressure Filter Holder (page 193)  Solvent Filtering Dispenser (page 141)  Microsyringe Filter Holder (page 191)  Filterjet™ Solvent Dispenser (page 142) 	1225 Sampling Manifold (page 140) 	Swinnex® Holder (page 190)
47 mm	All-Glass Filter Holders (page 127) 	Analytical Filter Holder (page 130) 	SS Pressure Filter Holder (page 196) 	Sterifil® System (page 131) 	Swinnex® Holder (page 190) 
	Classic Glass Filter Holder (page 128)  MilliSolve™ System (page 197) 	Hydrosol™ Filter Holder (page 133) 	High Pressure Filter Holder (page 193) 	Sterifil® 500 Filter Holder (page 131) 	In-Line Filter Holder (page 192) 
90 mm	All-Glass Filter Holder (page 127) 		Standing SS Filter Holder (page 195) 		
142 mm			Standing SS Filter Holder (page 195) 		

All-Glass Filter Holder (47 mm, 90 mm)

For filtration of corrosive liquids and solvents

The All-Glass Filter Holder was designed for the filtration of aqueous and organic or corrosive liquids for particulate contamination analysis. The holder can also be used for HPLC solvent preparation. The vacuum connection is integrated into the filter holder base and flask cap, above the filtrate exit level. With this design, you can avoid unintentionally drawing filtrate into vacuum tubing. This design also allows simple transfer of filtrate (i.e., HPLC solvents) by pouring from the receiver flask.

Features & Benefits

- All-glass construction has broad chemical compatibility
- Borosilicate glass parts contact liquid, with ground-glass sealing surfaces
- Vacuum connection to flask cap simplifies transfer of filtrate

Applications

Particle Contamination Analysis, HPLC Solvent Filtration, General Filtration and Clarification

Specifications

	47 mm Holder	90 mm Holder
Materials		
Funnel, Base, and Cap	Borosilicate glass funnel, base and tubulated cap; anodized aluminum spring clamp	
Filter Support	Fritted glass*	PTFE-coated stainless steel
Flask	Borosilicate glass	N/A
Filter Diameter, mm	47	90
Filtration Area, cm²	9.6	40
Volume Capacity, mL	Funnel: 300 mL; flask: 1 L	Funnel: 1 L
Outlet Fitting	6 mm (1/4 in.) O.D. tubulated cap sidearm to vacuum	
Dimensions		
Height, cm	43	35 (funnel and base)
Diameter, cm	Flask: 14; funnel: 7.6	Funnel: 11.5

* Optional glass base with stainless steel screen available.

Ordering Information

Description	Qty/Pk	Catalogue No.
All-Glass Filter Holder Assembly with Funnel, base, cap, clamp, and flask, 47 mm	1	XX1504700
All-Glass Filter Holder Assembly with Funnel, base, cap, clamp, 90 mm	1	XX1009020
Accessories (47 mm and 90 mm Holders)		
1 L Ground Joint Flask	1	XX1504705
2 L Ground Joint Flask	1	XX1604705
5 L Ground Joint Flask with Conical Bottom	1	XX1604706
Tubing, 3/16 in. I.D. x 140 cm, silicone	1	XX7100004
Filter Forceps, blunt end, stainless	3	XX6200006P
Accessories (47 mm Holder Only)		
Glass Base & Cap with Stainless Steel Screen, 47 mm	1	XX1504732
1L Funnel, 47 mm, ground glass seal	1	XX1004707
Replacement Parts (47 mm Holder)		
Glass Funnel, 300 mL, 47 mm	1	XX1004704
Vacuum Base and Cap, fritted glass	1	XX1504702
Vacuum Base and Cap, stainless steel support	1	XX1504732
Support Screen, stainless steel	1	XX2004708
Spring Clamp, anodized aluminum	1	XX1004703
47 mm Gasket, PTFE	25	XX2004703
Replacement Parts (90 mm Holder)		
Glass Funnel, 1 L, 90 mm	1	XX1009000
Support Screen, stainless steel	1	XX1009002
Spring Clamp, anodized aluminum	1	XX1009003
Vacuum Base and Cap, stainless steel support	1	XX1009004
90 mm Gasket, PTFE	10	XX1009010

Note: completed replacement part information available online.

For more information visit: www.merckmillipore.com/LabHardware

Classic Glass Filter Holders

For 47 mm disc filters

The Classic Glass Filter Holder is an essential tool for every research lab. The holder's multipurpose design is appropriate for a variety of applications and is available in three different support materials for compatibility with your specific application needs.

Features & Benefits

- Designed for easy loading and removal of membranes
- Three membrane support material options to suit a variety of applications
- UV sterilize or autoclave with filter in place for bacteriological analysis

Applications

General Clarification, Bacteriological Analysis, Particulate Contamination Analysis of Oils and Hydraulic Fluids, Exfoliative Cytology

Specifications

Materials of Construction	Borosilicate glass funnel and base; anodized aluminum spring clamp; silicone stopper
Glass Support (cat. no. XX1004700)	Coarse-frit glass filter support
PTFE Support (cat. no. XX1004720)	PTFE-faced funnel and base
Stainless Screen Support (cat. no. XX1004730)	Stainless steel screen filter support
Filter Diameter, mm	47
Filtration Area, cm^2	9.6
Funnel Capacity, mL	300; accessory 1 L is available
Prefilter Diameter, mm	35 (thick depth prefilter) or 47 (membrane prefilter)
Outlet Fitting	No. 8 perforated silicone stopper mounts in standard 1 L and 4 L filtering flasks
Dimensions	
Height, cm	22.9
Diameter, cm	7.6
Sterilization Method	
Glass Supported and Stainless Screen Supported Holders	UV sterilize or autoclave without filter in place
PTFE Supported Holder	Autoclave with filter in place

Ordering Information

Description	Qty/Pk	Catalogue No.
Glass Filter Holder Assembly, with funnel, fritted base, stopper, clamp, 47 mm	1	XX1004700
Glass Filter Holder Assembly, PTFE-coated, with funnel, base, stopper clamp, 47 mm	1	XX1004720
Glass Filter Holder with stainless steel screen, 47 mm	1	XX1004730
Replacement Parts: Glass Filter Holder		
Glass Funnel, 300 mL, borosilcate	1	XX1004704
Spring Clamp, 47 mm, aluminum	1	XX1004703
Base for 47 mm glass/filter holder	1	XX1004702
No. 8 Perforated Stopper, silicone	5	XX1004708
Replacement Parts: PTFE-faced Glass Filter Holder		
Funnel, PTFE-faced, 300 mL	1	XX1004724
Spring Clamp, 47 mm, aluminum	1	XX1004703
Glass Base, PTFE-faced, 47 mm	1	XX1004722
No. 8 Perforated Stopper, silicone	5	XX1004708
Replacement Parts: Stainless Screen Glass Filter Holder		
Glass Funnel, 300 mL, borosilcate	1	XX1004704
Spring Clamp, 47 mm, aluminum	1	XX1004703

Description	Qty/Pk	Catalogue No.
Glass Base with Screen, 47 mm	1	XX1004732
Glass Base without Screen, 47 mm	1	XX1004733
Support Screen, 47 mm, stainless steel	1	XX2004708
Gasket, PTFE	25	XX2004703
No. 8 Perforated Stopper, silicone	5	XX1004708
Note: complete replacement parts information available online.		
Accessories		
Vacuum Filtering Flask, 1 L	1	XX1004705
Vaccum Filtering Flask, 4 L	1	XX1004744
1 L Funnel, 47 mm, ground glass seal	1	XX1004707
Tubing, 3/16 in. I.D. x 140 cm, silicone	1	XX7100004
High Output Pump, 115 V/60 Hz	1	WP6211560
High Output Pump, 220 V/50 Hz	1	WP6222050
High Output Pump, 100 V/50–60 Hz	1	WP6210060

For more information visit: www.merckmillipore.com/LabHardware

Glass Microanalysis Filter Holders

For small-volume contamination or biological analysis

The glass microanalysis filter holder is designed for vacuum filtration of small-volume liquid samples for particulate or biological contamination analysis.

Applications

Contamination Analysis (not for use with thick prefilters or flammable liquids)

Features & Benefits

- Volume graduations clearly indicate sample volume
- Filter support available in fritted glass or stainless steel

Specifications

Materials	
Filter Holder, 25 mm, fritted glass (cat. no. XX1002500)	Borosilicate glass funnel and base; fritted glass filter support; anodized aluminum spring clamp; silicone stopper
Filter Holder, 25 mm, stainless steel (cat. no. XX1002530)	Borosilicate glass funnel and base; removable stainless steel screen filter support; anodized aluminum spring clamp; silicone stopper
Filter Diameter, mm	~25
Filtration Area, cm²	2.5
Funnel Capacity, mL	15
Outlet Fitting	No. 5 perforated silicone stopper mounts in standard 125 mL filtering flask*
Dimensions	
Height, cm	15.2
Diameter, cm	2.5

*Filter holders can be used on 1 L flasks using a No. 8 stopper (cat. no. XX2004718).

Ordering Information

Description	Qty/Pk	Catalogue No.
Microanalysis Filter Holder, 25 mm, fritted glass support	1	XX1002500
Microanalysis Filter Holder, 25 mm, stainless steel support	1	XX1002530
Replacement Parts		
Funnel,15 mL, borosilcate glass	1	XX1002514
Spring Clamp, 25 mm, aluminum	1	XX1002503
Fritted Glass Base with Stopper, 25 mm	1	XX1002502
Base Stopper and Stainless Steel Screen	1	XX1002532
No. 5 Perforated Stopper, silicone	5	XX1002508
Gaskets, PTFE coated	10	XX1002535
Support Screen, 25 mm, stainless steel	1	XX5002501

For more information visit: www.merckmillipore.com/LabHardware

Analytical Stainless Steel Filter Holders for 13, 25, and 47 mm Disc Filters

For contamination analysis

The analytical stainless steel filter holders are designed for the vacuum filtration of samples for bacteriological or particulate contamination analysis.

Features & Benefits

- Available in three diameters with four available funnel sizes to accommodate samples up to 250 mL
- Holder with 250 mL funnel is equipped with a funnel lid, which can be vented using accessory filter unit
- Can be autoclaved or flame-sterilized

Applications

Bacteriological or Particulate Contamination Analysis

Specifications

	40 mL Holder	50 mL Holder	100 mL Holder	250 mL Holder
Materials				
Assembly	Stainless steel funnel and support screen	Stainless steel funnel and support screen; borosilicate glass base; anodized aluminum spring clamp; silicone stopper	Stainless steel funnel, support screen and base; anodized aluminum spring clamp; silicone stopper	Stainless steel funnel, support screen and base; stainless steel funnel cover; anodized aluminum spring clamp; silicone stopper
Gasket	PTFE	PTFE	No gasket needed	No gasket needed
Filter Diameter, mm	13	25	47	47
Filtration Area, cm²	0.7	2.8	9	9
Dimensions				
Height, cm	8.9	12.6	15.6	19.4
Diameter, cm	3.8	5.1	6.2	7.6
Outlet	Male Luer-Slip™	No. 8 perforated silicone stopper mounts in standard 1 L filtering flask		

Ordering Information

Description	Qty/Pk	Catalogue No.
40 mL Filter Holder, 13 mm, stainless steel	1	XX3001240
50 mL Filter Holder, 25 mm, stainless steel	1	XX1002540
100 mL Filter Holder, 47 mm, stainless steel	1	XF2004710
250 mL Filter Holder, 47 mm, stainless steel	1	XF2004725
Replacement Parts for 40 mL Holder		
Replacement Parts Kit for 40 mL Holder	1	XX30012RK*
*Kit includes (4) PTFE O-rings, (4) PTFE gaskets, (4) stainless steel support screens		
Replacement Parts for 50 mL Holder		
Spring Clamp, 25 mm, aluminum	1	XX1002503
Base Assembly for 25 mm Filter Holder	1	XX1002542**
No. 8 Stopper, 9.5 mm (3/8 in.) hole, silicone	5	XX2004718
Support Screen, 25 mm, stainless steel	1	XX5002501
Gaskets, PTFE coated	10	XX1002535
**Base with Support Screen, Gasket, and Stopper		

Description	Qty/Pk	Catalogue No.
Replacement Parts for 100 and 250 mL Holders		
Stainless Steel Funnel, 100 mL	1	XF2004755
Stainless Steel Funnel, 250 mL	1	XF2004756
Spring Clamp, 47 mm, aluminum	1	XX1004703
No. 8 Perforated Stopper, silicone	5	XX1004708
Stainless Steel Support Frit	1	XF2004758
Accessories		
Millex®-FG Filter Unit, 0.20 µm, hydrophobic PTFE, 25 mm	50	SLFG02550
Vacuum Filtering Flask, 1 L	1	XX1004705
Vaccum Filtering Flask, 4 L	1	XX1004744
Tubing, 3/16 in. I.D. x 140 cm, silicone	1	XX7100004

For more information visit: www.merckmillipore.com/LabHardware

Epifluorescence Stainless Steel Filter Holder

For bacteriological analysis by epifluorescence

Designed for accurate, quantitative vacuum filtration of samples for bacteriological analysis by epifluorescence microscopy, the highly polished stainless steel funnel prevents bacterial cells from adhering to surface.

Applications

Bacteriological Analysis by Epifluorescence Microscopy

Specifications

Materials	Stainless steel funnel and base; anodized aluminum spring clamp; silicone stopper
Filter Diameter, mm	13
Filtration Area, cm²	0.7
Funnel Capacity, mL	250
Outlet Fitting	No. 8 perforated silicone stopper mounts in standard 1 L filtering flask

Ordering Information

Description	Qty/Pk	Catalogue No.
Epifluorescence Filter Holder, 13 mm, stainless steel	1	XF3001200

For more information visit: www.merckmillipore.com/LabHardware

Sterifil® Aseptic System and Holder

Reusable, autoclavable device with removable membrane

The Sterifil® aseptic system was designed as a tool for general filtration applications and filtration of samples for particulate or biological contamination analysis. Sterifil® holder and funnel are available separately (without receiver flask and cover) to use with standard 1 L filter flasks or multiple place manifolds.

Applications

General Filtration, Field-based Filtration (with optional hand pump), Sterile Filtration, Bioburden Monitoring, Counting Microorganisms, Filtration Processes Requiring Membrane to be Retained

Features & Benefits

- Closed unit protects samples and filtrate from environmental contamination
- Device is autoclavable with membrane in place for sterile applications with less waste
- Optional hand pump allows for on-site filtration

Specifications

Materials	Polysulfone funnel, funnel cover, receiver flask and cover; polypropylene holder base and filter support screen; silicone stopper	
	Sterifil® Aseptic System	**Sterifil® 500 Holder**
Dimensions		
Height, cm	20.3	14.5
Diameter, cm	10.8	8.5
Filter Diameter, mm	47	47
Filtration Area, cm^2	13.8	15.2
Funnel Capacity, mL	250	500
Prefilter Diameter, mm	42 (thick depth prefilter) or 47 (membrane prefilter)	
Outlet Fitting	Holder outlet stopper fits standard 1 L filtering flask	
Receiver Flask Fitting	Receiver flask ports accept 6 mm (1/4") I.D. tubing or male Luer-Slip™ connection for vacuum, drain, or vent.	
Cover Inlet and Vent Ports	Female Luer-Slip™ connection	

Ordering Information

Description	Qty/Pk	Catalogue No.
Sterifil® Aseptic System, 47 mm	1	XX1104700
Sterifil® Holder, 250 mL (excludes receiver flask)	1	XX1104710
Sterifil® Holder, 500 mL	1	XX11J4750
Replacement Parts		
Sterifil® Funnel Cover	1	XX1104703
Caps, gum rubber	100	XX1104711
Swinnex® Filter Holder, 13 mm	10	SX0001300
Glass Fiber Filter with Binder, AP25, 13 mm	100	AP2501300
Sterifil® Funnel, 250 mL, 47 mm, Polysulfone	1	XX1104704
Filter Holder Base and Support Screen	1	XX1104702
Support Screen, 47 mm, polypropylene	1	XX1104715
O-ring (5-329) for Swinnex® 47 mm filter holder, silicone	10	XX1104707
No. 8 Stopper, 9.5 mm (3/8 in.) hole, silicone	5	XX2004718
Cover for Sterifil® Receiver Flask	1	XX1104706
Sterifil® Receiver Flask, 250 mL	1	XX1104705
Note: complete replacement parts information available online.		
Accessories		
Tubing, 3/16 in. I.D. x 140 cm, silicone	1	XX7100004
Hand Vacuum Pump, polypropylene	1	XKEM00107
EZ-Fit® Manifold, 3-place, stainless steel	1	EZFITMIC03
High Output Pump, 115 V/60 Hz	1	WP6211560
High Output Pump, 220 V/50 Hz	1	WP6222050
High Output Pump, 100 V/50–60 Hz	1	WP6210060

For more information visit: www.merckmillipore.com/LabHardware

Hydrosol™ Stainless Steel Filter Holder

For analysis of flammable liquids

The Hydrosol™ filter holder is designed for the filtration of flammable liquids. Unlike other filter holders, the Hydrosol™ filter holder includes a grounding unit to prevent sparking from static discharge, which can be a safety hazard.

Applications

Vacuum Filtration of Flammable Liquids

Specifications

Materials	Stainless steel funnel, base and filter support screen; anodized aluminum locking ring; nylon lockwheels; silicone stopper
Filter Diameter, mm	47
Filtration Area, cm²	9.6
Funnel Capacity, mL	650
Prefilter Diameter, mm	35 (thick depth prefilter) or 47 (membrane prefilter)
Outlet Fitting	No. 8 perforated silicone stopper mounts in standard 1 L filtering flask
Dimensions	
Height, cm	22.9
Diameter, cm	11.4

Ordering Information

Description	Qty/Pk	Catalogue No.
Hydrosol™ Filter Holder, 47 mm, stainless steel	1	XX2004720
Replacement Parts		
Funnel and Locking Ring Assembly, stainless steel	1	XX2004704
Support Screen, 47 mm, stainless steel	1	XX2004708
Base with Screen, gasket and stopper	1	XX2004702
Gasket, PTFE	25	XX2004703
No. 8 Stopper, 9.5 mm (3/8 in.) hole, silicone	5	XX2004718
Replacement Parts Kit for Hydrosol™ Filter Holder	1	XX20047RK*
*Replacement parts kit includes (1) 47 mm aluminum locking ring, (1) hex key, (1) nylon locking wheel with wrench, (5) PTFE screen gaskets, (5) PTFE locking ring gaskets		
Accessories		
Vacuum Filtering Flask, 1 L	1	XX1004705
Vaccum Filtering Flask, 4 L	1	XX1004744
Tubing, 3/16 in. I.D. x 140 cm, silicone	1	XX7100004
Filter Forceps, blunt end, stainless steel	3	XX6200006P
3-place Manifold, 47 mm, PVC	1	XX2604735
3-place Manifold, 47 mm, stainless steel	1	XX2504735
6-place Manifold, 47 mm, stainless steel	1	XX2504700
High Output Pump, 115 V/60 Hz	1	WP6211560
High Output Pump, 220 V/50 Hz	1	WP6222050
High Output Pump, 100 V/50–60 Hz	1	WP6210060

For more information visit: www.merckmillipore.com/LabHardware

Aerosol Filter Holders

For environmental monitoring

These aerosol filter holders are designed for monitoring airborne particulates from the environment and/or closed systems. Choose the holder design most appropriate for your method. Aerosol filter holders are available in two formats: open-type for open atmosphere sampling and a standard design with a closed connection and inlet dispersion chamber.

Applications
Particulate Contamination Monitoring in Gases

Specifications

Materials	Stainless steel bodies, filter support screens; anodized aluminum locking rings; nylon lockwheels
Dimensions	
Filter Diameter, mm	47
Filtration Area, cm²	9.6
Length, cm of Std. Holder	17.8
Length, cm of Open Holder	10.2
Diameter, cm	6.9
Connections	
Inlet – Std. Holder	Hose connector (11 mm O.D.)
Outlet	Closed system connection, with inlet dispersion chamber and 11mm O.D. inlet/outlet connections, threaded for flow-limiting orifices

Ordering Information

Description	Qty/Pk	Catalogue No.
Aerosol Standard Filter Holder, 47 mm, stainless steel	1	XX5004700
Aerosol Open Filter Holder, 47 mm, stainless steel	1	XX5004710
Aerosol Clean Room Filter Holder, 47 mm, stainless steel	1	XX5004740

For more information visit: www.merckmillipore.com/ParticleMonitoring

PVC Membrane Filters

Pure, medical-grade PVC for sensitive air monitoring

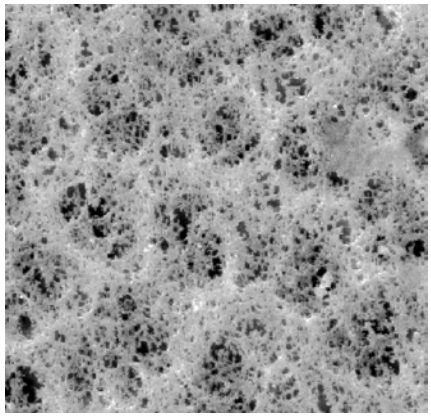
Polyvinylidene chloride (PVC) membranes are specified by ASTM, NIOSH, and OSHA in air monitoring applications to analyze silica, carbon black, metals, quartz particulates and others.

Features & Benefits

- High-quality, medical-grade PVC polymer
- PVC is non-hygroscopic, so humidity will not impact your gravimetric analysis

Applications

Air Monitoring of Particulate Contaminants Including Silica, Metals, and Quartz



Ordering Information

Description	Pore Size (µm)	Diameter (mm)	Color	Surface	Qty/Pk	Catalogue No.
PVC Membrane	5	25	White	Plain	100	PVC502500
		37	White	Plain	100	PVC503700
		47	White	Plain	100	PVC504700

For more information visit: www.merckmillipore/filterdiscs

Silver Membrane Filters

Pure silver filters for particulate monitoring

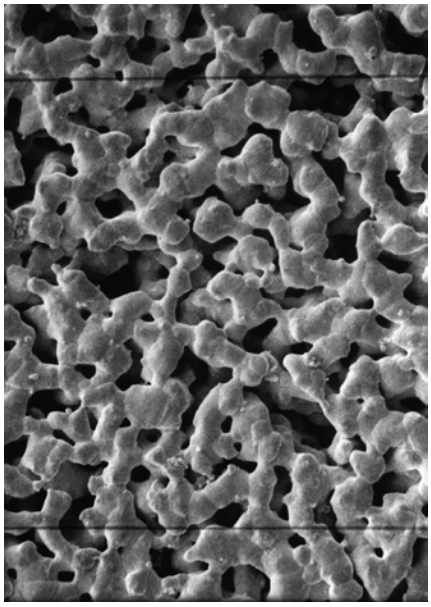
Silver membrane filters are suitable for a variety of applications and are commonly used for air monitoring and analysis of particulate contaminants. Methods from standards organizations like NIOSH specify silver membrane filters for collection and detection of particles such as silica, carbon black, coal tar products, and coke oven emissions.

Features & Benefits

- Pure silver
- Highly resistant to thermal stress and aggressive chemicals
- Low background for sensitive X-ray diffraction analysis

Applications

Air Monitoring: Asbestos, Lead Sulfide, Crystalline and Amorphous Silica



Ordering Information

Description	Pore Size (µm)	Diameter (mm)	Surface	Qty/Pk	Catalogue No.
Silver Membrane	0.45	25	Plain	50	AG4502550
Accessory					
Filter Forceps, blunt end, stainless steel				3	XX6200006P

For more information visit: www.merckmillipore/filterdiscs

Radioactive Alpha Particle Monitoring

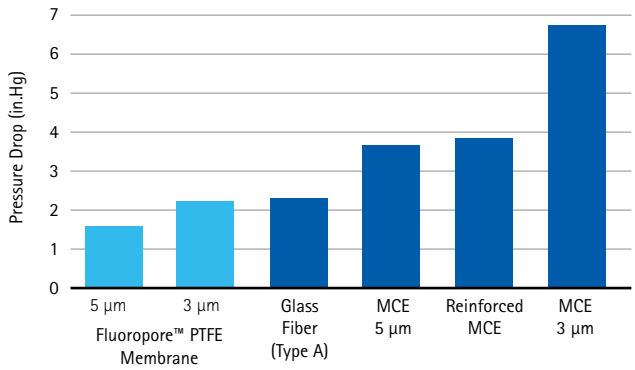
In order to reap the benefits of nuclear energy responsibly, users and regulatory organizations must monitor the degree to which radioactive byproducts of human activity enter the environment. Human activities that generate radioactive particles include scientific experiments involving radiation, medical therapies, nuclear-powered submarines, x-ray procedures, nuclear power plants and smoke detectors. Although there are many naturally occurring radioisotopes in water, air, soil, and organisms, the challenge in radiation monitoring is to detect the "nonnatural" radiation signal above the naturally occurring background radiation levels.

To support efficient, convenient radiation monitoring, Merck Millipore has developed a special Fluoropore™ PTFE membrane filter designed for alpha particle collection in single-use and continuous air monitors. Fluoropore™ membrane is approved for use by the French Institute for Radiological Protection and Nuclear Safety in Saclay, France as well as national labs in North America and Asia.

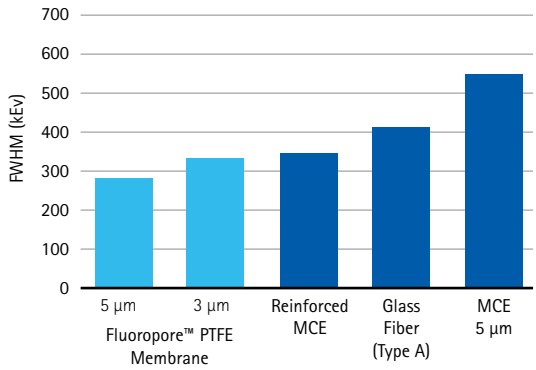
The Fluoropore™ filter for alpha particle monitoring provides:

- **Improved detection accuracy.** Unlike fibrous filter media that trap particles in their matrix, Fluoropore™ membranes collect particles on their surface. This surface collection keeps particles closer to the detector, providing better detection efficiencies and improved resolution.
- **Choice of pore sizes.** Fluoropore™ membranes are available in 3 and 5 µm pore sizes. The smaller pore size provides high resolution. The larger pore size has very low pressure drop and greater throughput capacity, which minimizes the number of filter change-outs.
- **Contrasting backing material.** The 5 µm Fluoropore™ membrane is bonded to a gridded backing made from high density polyethylene fiber. The contrast between the top and bottom of the filter prevents incorrect installation in sampling devices. The backing also reduces the electrostatic charge of the filters and makes them easier to handle.

A.



B.



Lower pressure drop, lower FWHM* measurements. Merck Millipore's Fluoropore™ PTFE membranes exhibit lower pressure drop (A) and collect particles on the surface , providing better detection efficiencies and lower FWHM measurements (B). Room air was collected at 1.7 m3/h (1 standard cubic foot/min).

*FWHM, a measure of spectral quality/resolution, is defined as the full width at half of the maximum height of the P0-218 peak obtained during air sampling of room air.

For ordering information see page 178.

Aerosol Contamination Monitors

With 25 mm and 37 mm filters

Two types of three-piece aerosol contamination monitors are offered: the PS monitor (Type A) and the PP monitor (Type B). Type A is a clear, polystyrene monitor with a 16 mm center ring. The three-piece design holds the filter in place when the top section is removed for open aerosol sampling. Monitors are available in 25 mm and 37 mm diameters, with female Luer-Slip™ vacuum connection. Type A monitors are also available without membrane.

Type B is a three-piece carbon-filled polypropylene conductive monitor with 50 mm extension cowl. Barbed hose vacuum connection eliminates the need for tubing adapter. Use monitors (Cat. No. MAWP025AC) for airborne asbestos monitoring in accordance with NIOSH specifications.

Features & Benefits

- Compliant with NIOSH standard methods
- Boxes marked with Average Background Count (ABC) values
- Pre-assembled with filters in place
- Available with white, black or gridded membranes in two pore sizes
- Available with matched-weight membranes to save time during gravimetric analysis
- A thin cellulose support seals the filter between monitor sections to distribute sample flow evenly over the filter surface

Applications

Air Monitoring, Environmental Montitoring, Aerosol Contamination Monitoring, Asbestos Monitoring

Specifications

Materials	
Filter and Support Pad	MF-Millipore™ MCE membrane / cellulose pad
Type A Monitor Case	Polystyrene
Type B Monitor Case	Carbon-filled polypropylene
Connections	
Inlet	Female Luer-Slip™ fit
Outlet	Female Luer-Slip™ fit
Sterility	Non-sterile

Ordering Information

Description	Pore Size (µm)	Diameter (mm)	Filter Color	Filter Surface	Qty/Pk	Catalogue No.
Monitors, complete with membrane filters						
Type A, Aerosol Monitor	0.8	25	White	Plain	50	MAWP025A0
	0.8	37	White	Plain	50	MAWP037A0
	0.45	37	White	Plain	50	MHWP037A0
Type A, Matched-Weight Aerosol Monitor	0.8	37	White	Plain	50	MAWP037AM
Type B, Aerosol Monitor	0.8	25	White	Plain	50	MAWP025AC
Monitor Refills						
MF-Millipore™ MCE Refills with Thin Absorbent Pad	5.0	37	White	Plain	100	SMWP03700
	0.8	37	White	Plain	100	AAWP03700
	0.8	37	White	Gridded	100	AAWG03700
	0.8	37	Black	Gridded	100	AABG03700
	0.45	37	White	Plain	100	HAWP03700
	0.45	37	White	Gridded	100	HAWG03700
	0.22	37	White	Plain	100	GSWP03700
Mitex™ PTFE Refills with Thin Absorbent Pad	5.0	37	White	Plain	100	LSWP03700
Empty Monitor Housings						
Empty Monitor Cassette, Type A		25			50	M000025A0
		37			50	M000037A0
Empty Monitor Cassette without Ring		37			50	M00003700

For more information visit: www.merckmillipore.com/ParticleMonitoring

Aerosol Analysis Accessories

For environmental monitoring

The Aerosol Adapter adapts your vacuum source to an aerosol analysis monitor, Swinnex® 47 mm filter holder or other products with female Luer inlets. Attach a flow-limiting orifice for quantitative aerosol sampling. The adapter's vacuum-hose end fits the hole of a No. 8 silicone stopper, (cat. no. XX1004708) and the opposite male Luer-Slip™ end fits Swinnex® filter holders or monitor outlet connections.

Flow-limiting orifices create quantitative airflow through an MF-Millipore™ filter for airborne contamination analysis. Thread the orifice into the outlet of an aerosol analysis holder or aerosol adapter for a constant flow rate.

Features & Benefits

- Modulate flow rate to meet specified flow rates without the need for additional flow regulators or valves
- Flow-limiting orifice ratings are accurate to within approximately 15%; for greater precision, calibrate orifice with a flowmeter at actual working vacuum level

Applications

Air Monitoring, Environmental Monitoring, Aerosol Contamination Monitoring

Specifications

Orifice Flow Rate (L/min)	mm Hg	in Hg	PSIG
1	300	12	6
3	300	12	6
4.9	400	16	8
10	500	20	10
14	550	22	11

Ordering Information

Description	Qty/Pk	Catalogue No.
Flow-limiting Orifices, set of 5	1	XX5000000
Flow-limiting Orifice, 2 L/min	1	XX5000020
Flow-limiting Orifice, 1 L/min	1	XX5000002
Aerosol Adapter, Luer-Slip™ to 1/4 in.– 3/8 in. I.D. hose, stainless steel	1	XX6200004

For more information visit: www.merckmillipore.com/ParticleMonitoring

Fluid Contamination Monitors

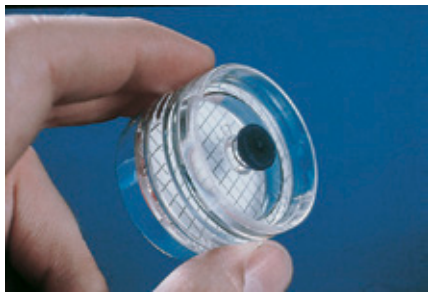
For contamination analysis

Fluid Contamination Analysis Monitors are transparent, disposable filter holders made from Tenite® plastic and pre-assembled with MF-Millipore™ filters. A thick cellulose pad, 34 mm diameter, between the monitor sections seals the filter to distribute the sample flow evenly over the filter surface. Use with the Fluid Sampling Kit (cat. no. XX6403730).

Matched-Weight Monitors eliminate the need to pre-weigh test filters in gravimetric analysis. Each monitor contains two filters matched in weight to within 0.1 mg. Sample passes through both, but upper (test) filter retains all contaminants. The difference in filter weights, after drying, equals the weight of contaminants in sample.

Features & Benefits

- Pre-assembled with filters in place
- Tenite® housings are compatible with liquid hydrocarbon fuels
- Available with matched-weight membranes to save time during gravimetric analysis
- Extend the life of your monitors with membrane refills, both standard membane and matched-weight pairs



Applications

Liquid Contamination Monitoring

Ordering Information

Description	Pore Size (µm)	Filter Color	Filter Surface	Qty/Pk	Catalogue No.
Fluid Contamination Analysis Monitor	0.8	White	Plain	50	MAWP037P0
Matched-Weight Fluid Contamination Analysis Monitor	0.8	White	Plain	50	MAWP037PM
Accessories					
Fluid Contamination Monitor, empty				50	M000037P0

For more information visit: www.merckmillipore.com/ParticleMonitoring

Filter Support Materials

Cellulose pads and Dacron® mesh spacers

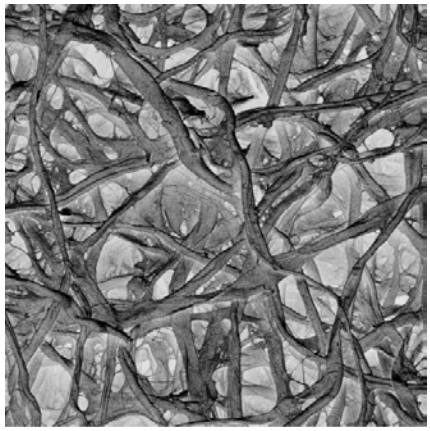
Cellulose support pads are used to reinforce filters in monitors for contamination analysis. When saturated with growth medium, they can also be used for culturing microorganisms on membranes. Woven mesh spacers are placed between filters during serial filtration to prevent the downstream screen filter from "blinding" the upstream filter pores. They increase flow rate and throughput.

Features & Benefits

- Avoid membrane damage during high pressure or fast flow conditions
- Spacers enable you to combine multiple stages of filtration into a single process step, saving time

Applications

Air Monitoring, Environmental Monitoring, Aerosol Contamination Monitoring



Ordering Information

Description	Diameter (mm)	Qty/Pk	Catalogue No.
Absorbent Pad	13	100	AP1001300
	25	100	AP1002500
	37	100	AP1003700
	47	100	AP1004700
Thick Absorbent Pad	34	100	AP30034P0
Woven Mesh Spacer	124	50	AP3212450

For more information visit: www.merckmillipore/filterdiscs

1225 Sampling Manifold

For multi-sample vacuum filtration

Simultaneously vacuum filter 12 samples for rapid analysis of retentate or filtrate. Numbered positions on the filter plate assure accurate sample tracking. Sealing stoppers maintain vacuum on unused sample cups. Accessory extension barrels increase sample volumes from 15 to 50 mL.

Applications

General Filtration of 15 to 50 mL Samples, Preparation for Scintillation Counting

Specifications

Materials	Glass-filled polypropylene plates, chamber, handwheel nut, valve; polypropylene test tube rack, support screens; HDPE drain plug; 316 stainless steel bolt; brass handwheel insert
Filter Diameter, mm	24 or 25
Filtration Area, cm^2	2.7 per filter
Cup Volume, mL	15; 50 with extension barrel
Fittings	1/4 in. NPTF for vacuum valve and drain plug
Dimensions	
Height, cm	17.7
Diameter, cm	20.5
Shipping Weight, kg (lb)	2.9 (6.4)
Sterilization Method	Can be autoclaved a minimum of 20 times (screens and O-rings not autoclavable)
Chemical Compatibility	Acid- and base-resistant (includes TCA). Solvent-resistant at temperatures <80 °C. Not for strong oxidizing acids.

Ordering Information

Description	Qty/Pk	Catalogue No.
1225 Sampling Manifold	1	XX2702550
Replacement Parts		
Hand Knob	1	YY2214257
Top Plate	1	5162
Filter O-ring, silicone	30	XX2702509
Support Plate	1	5163
Support Screen, 25 mm, polypropylene	30	XX2702510
Ball Valve, glass-filled polypropylene	1	XX11000PP
Tubing, 1/4 in. x 23 in., latex	1	XX2504755
Note: Complete replacement parts information available online.		
Accessories		
Chamber O-rings and Plug Set	1	XX2702552
Sample Cup Extension Barrel	12	XX2702555
Filter Forceps, blunt end, stainless steel	3	XX6200006P
Tubing, 3/16 in. I.D. x 140 cm, silicone	1	XX7100004

Solvent Filtering Dispenser

Point-of-use, hand-operated solvent filtration

Ultraclean and dispense small volumes of solvent by squeeze-bottle action. This hand-pressure operated dispenser features a filter holder fitted with a delivery tube. Use to direct filtered solvent against surfaces.

Features & Benefits

- Integrated hand pump eliminates the need for external pump
- Holds up to 1 L of solvent

Applications

Solvent Filtration Prior to Contamination Analysis, Solvent Rinsing of Machined Parts and Collection Containers

Specifications

Materials	Borosilicate glass flask; neoprene bulb and stopper; stainless steel filter holder; PTFE gaskets and tubing; glass elbow and dispensing nozzle
Filter Diameter, mm	25
Filtration Area, cm²	3.9
Pore Size, µm	1.2*
Flask Capacity, L	1
Dimensions	
Height, cm	31.8
Diameter, cm	13.3

*25 type RAWP filter discs are included with dispenser.

Ordering Information

Description	Qty/Pk	Catalogue No.
Solvent Filtering Dispenser, 25 mm	1	XX6602500
Replacement Parts		
Flask and Neoprene Stopper	1	XX6602501
Filter Holder Gasket, PTFE	10	XX3002502
Filter Holder Support Screen, stainless steel	1	XX3002510

For more information visit: www.merckmillipore.com/ParticleMonitoring

Filterjet™ Solvent Dispenser

Point-of-use solvent filtration

Apply a concentrated jet spray of ultracleaned solvent or rinse solution to surfaces that require washing. Just connect the Filterjet™ dispenser to a dispensing pressure vessel to ensure that the solvent or other liquid is filtered immediately before dispensing. The filter holder (cat. No. XX4002500), which is part of the dispenser, can also be used by itself for in-line pressure filtration of gases.

Applications

Solvent Filtration Prior to Contamination Analysis, Solvent Rinsing of Machined Parts and Collection Containers

Specifications	
Materials	Stainless steel filter holder and filter support screens; nylon-coated aluminum dispenser handle; PTFE valve; fluoroelastomer filter-holder gaskets; polyethylene pressure tubing; stainless steel jet nozzle
Filter Diameter, mm	25
Filtration Area, cm^2	3.9
Prefilter Diameter, mm	22 (thick depth prefilter)
Max Inlet Pressure, bar (psi)	3.5 (50)
Fittings	1/4 in. NPTF to 1/4 in.
Dimensions	Approximately 229 mm (9 in.) from nozzle tip to end of dispenser handle, with 1.8 m (6') tubing

Ordering Information

Description	Qty/Pk	Catalogue No.
Filterjet™ Solvent Dispenser, 25 mm	1	XX6702500
Replacement Parts		
Handle and Valve Assembly	1	XX6702501
Valve Seals, PTFE	4	XX6702502
Pressure Tubing with 1/4 in. NPT Adapters, PE	1	XX6702506
Tube Adapter, 1/4 in. NPTM to 1/4 in. Tube	1	XX6702507
Tubing, 6 mm O.D. x 3 m, polypropylene	1	XX6702508
Replacement Pats Kit for Filterjet™ Solvent Dispenser	1	XX67025RK*
Gas Line Filter Holder, 25 mm, stainless steel	1	XX4002500
Replacement Parts Kit for Filter Holder	1	XX40025RK**
Note: additional replacement parts available.		
Accessories		
Dispensing Pressure Vessel, 5 L	1	XX6700P05
Pressure Gauge, 0–7 bar	1	YY1301015
Ball Valve, 1/4 in. NPTF, stainless steel	1	YY2029348
Quick-release Nipple & Coupling, 1/4 in. NPTM	1	XX6700030

*Includes stainless steel jet nozzle, fan spray and cone spray

**Includes (5) PTFE locking nut washers, (5) fluoroelastomer-A (2-021) O-rings, (5) stainless steel support screens

For more information visit: www.merckmillipore.com/ParticleMonitoring

Groundwater Sampling Capsules

EPA-approved for groundwater collection

These groundwater sampling capsules are an EPA-approved method for collection of groundwater prior to dissolved metals analysis. The pleated membrane provides four times more filtration area than a 142 mm filter disc for faster flow rates and higher throughput.

Features & Benefits

- Each capsule includes a certificate indicating lowest detectable level (LDL) analysis for 67 metals and 2 anions
- Low-extractable filter and housing materials minimize background during sample analysis
- Available with three different pore sizes to suit a variety of water conditions: 5.0 µm for high particulate levels, 1.0 µm for normal particulate levels, 0.45 µm for relatively clean water

Applications

Environmental Monitoring, Dissolved Metals Analysis in Water

Specifications

Materials	
Housing	HDPE
Membrane	Polyethersulfone
Connections	
Inlet/Outlet	1/8 in. NPTM, external threaded connections; with stepped hose adapter for up to 3/8 in. I.D. tubing
Maximum Pressure, bar (psi)	4.1 (60)
Dimensions	
Filtration Area, cm^2	600
Diameter, mm	76
Height, mm	102
Performance Properties	
Maximum Inlet Pressure, bar (psi)	4.1 (60)
Maximum Differential Pressure, bar (psid)	0.7 (10)
Water Flow Rate at 10 psi, L/min (gpm)	3.8 (1)
Bubble Point at 23 °C	
0.45 µm	≥2070 mbar, air with water
1.0 µm	≥690 mbar, air with water
5.0 µm	≥345 mbar, air with water

Ordering Information

Description	Pore Size (µm)	Qty/Pk	Catalogue No.
Groundwater Sampling Capsules	0.45	1	GWSC04501
		10	GWSC04510
		50	GWSC04550
	1.0	1	GWSC10001
		10	GWSC10010
	5.0	1	GWSC50001

For more information visit: www.merckmillipore.com/ParticleMonitoring

ZHE Hazardous Waste Filtration System (90 mm)

EPA-approved for EP Toxicity Test and TCLP

Do your waste samples contain volatile substances, such as isopropanol, acetone or xylene? Then use our ZHE (Zero Head Space Extractor) Hazardous Waste Filtration system, which is approved by the US Environmental Protection Agency (EPA) as an apparatus for Toxicity Characteristic Leaching Procedure (TCLP) measurement.

Features & Benefits

- Allows for pressurization of filter without introducing air, due to movable piston design
- Prevents loss of volatiles
- Manual and automatic venting modes
- System cannot be pressurized unless completely assembled, thereby preventing "shooting the piston" out of the unit accidentally

Applications

US EPA Extraction Procedure (EP) Toxicity Test and Toxicity Characteristic Leaching Procedure

Specifications

Materials	316 stainless steel body; molded polypropylene handwheels; fluoroelastomer-A O-rings
Connections	
Top Plate	1/8 in. NPTF upstream port for two-way SST valve with 1/8 in. NPTF for Luer fitting
Bottom Plate	1/4 in. NPTF port for 1/4 in. elbow or 1/4 in. x 1/8 in. NPT T-fitting; 1/4 in. NPTF port for pressure relief valve
Maximum Pressure, bar (psi)	3.5 (50)
Dimensions	
Filter Diameter, mm	90
Filtration Area, cm²	64
Prefilter Diameter, mm	90
Diameter, cm	15.9
Height, cm	27.9
Shipping Weight, kg	6.8
Piston Break Force, bar	0.35 – 0.7

Ordering Information

Description	Qty/Pk	Catalogue No.
ZHE Hazardous Waste System	1	YT30090HW
Replacement Parts		
Fitting Luer 1/8 in. NPTF	1	YT3009002
2-way Valve, 1/8 in. NPTM, stainless steel	1	XX2702512
Hand Knob	1	YY2214257
O-ring (2-235), 90 mm, fluoroelastomer	6	YY2209068
Support Screen, 90 mm, stainless steel	1	YY2209064
Cylinder O-rings	3	XX6700010
Piston with O-rings, wiper seal	1	YT3009001
Piston O-rings, wiper seal	3	YT3009003
Street Elbow, 1/4 in. NPTF to M	1	XX6700104
Quick-disconnect Female Swagelok®	1	YT3009013
Quick-disconnect Male Swagelok®	1	YT3009014
Vent/Relief Valve, 9 bar	1	XX6700024
Gauge, 0-100 psi 1/8 in. NPT	1	P16938
Quick Connector, female, 1/8 in. NPT	1	P16940
ZHE Holder, piston pusher	1	13899

Description	Qty/Pk	Catalogue No.
Accessories		
ZHE Tedlar Bag, 1 liter	10	YT3009016
ZHE Tight Syringe, 50 mL	1	YT3009015
Dispensing Pressure Vessel, 5 L	1	XX6700P05
Connector Kit Components		
Ball Valve, 1/4 in. NPTF, stainless steel	1	YY2029348
Vent/Relief Valve, 9 bar	1	XX6700024
Pressure Gauge, 0–7 bar	1	YY1301015
Quick-release Nipple & Coupling, 1/4 in. NPTM	1	XX6700030
Quick-disconnect Female Swagelok® Fitting	1	YT3009013
Hex Nipple, 1/4 in. NPTM 51 mm, stainless steel	1	XX6700125
Tube Adapter, 1/4 in. NPTM to 1/4 in. Tube	1	XX6702507
Tubing, 6 mm O.D. x 3 m, polypropylene	1	XX6702508
Adapter, 1/8 in. NPTF to M Luer-Lok®, chrome plated	1	XX3002567

Note: For rotary agitator and accessories, see Hazardous Waste Filtration System (142 mm).

For more information visit: www.merckmillipore.com/ParticleMonitoring

Hazardous Waste Filtration System (142 mm)

EPA approved for TCLP

If your waste samples contain non-volatile or semi-volatile substances or metals, use this Hazardous Waste Filtration System for separation, extraction, and filtration. Developed in collaboration with the US Environmental Protection Agency (EPA), the system is designed specifically for for the US EPA Extraction Procedure (EP) Toxicity Test and Toxicity Characteristic Leaching Procedure (TCLP). The device separates solid and liquid phases of waste samples for analysis.

Features & Benefits

- Contains interior holder with PTFE coating to prevent heavy metal contamination
- Allows easy introduction of bulky samples through wide entry port and removable top plate
- Disassembles for easy cleaning

Applications

US EPA EP Toxicity Test and Toxicity Characteristic Leaching Procedure

Specifications

Materials	316 stainless steel; aluminum legs; molded polypropylene handwheels; PTFE seal
Fittings	1-1/2 in. sanitary flange with clamps and adapters for 14 mm (9/16 in.) I.D. hose; 1/8 in. NPTF upstream port for vent/relief
Maximum Operating Pressure, bar (psi)	5.2 (75)
Dimensions	
Height, cm	43 (17)
Diameter, cm	18.4
Filter Diameter, mm	142
Prefilter Diameter, mm	124; type AP depth filter
Filtration Area, cm²	97
Volume, L	1.5
Shipping Weight, kg (lb)	12.3 (27.1)

Ordering Information

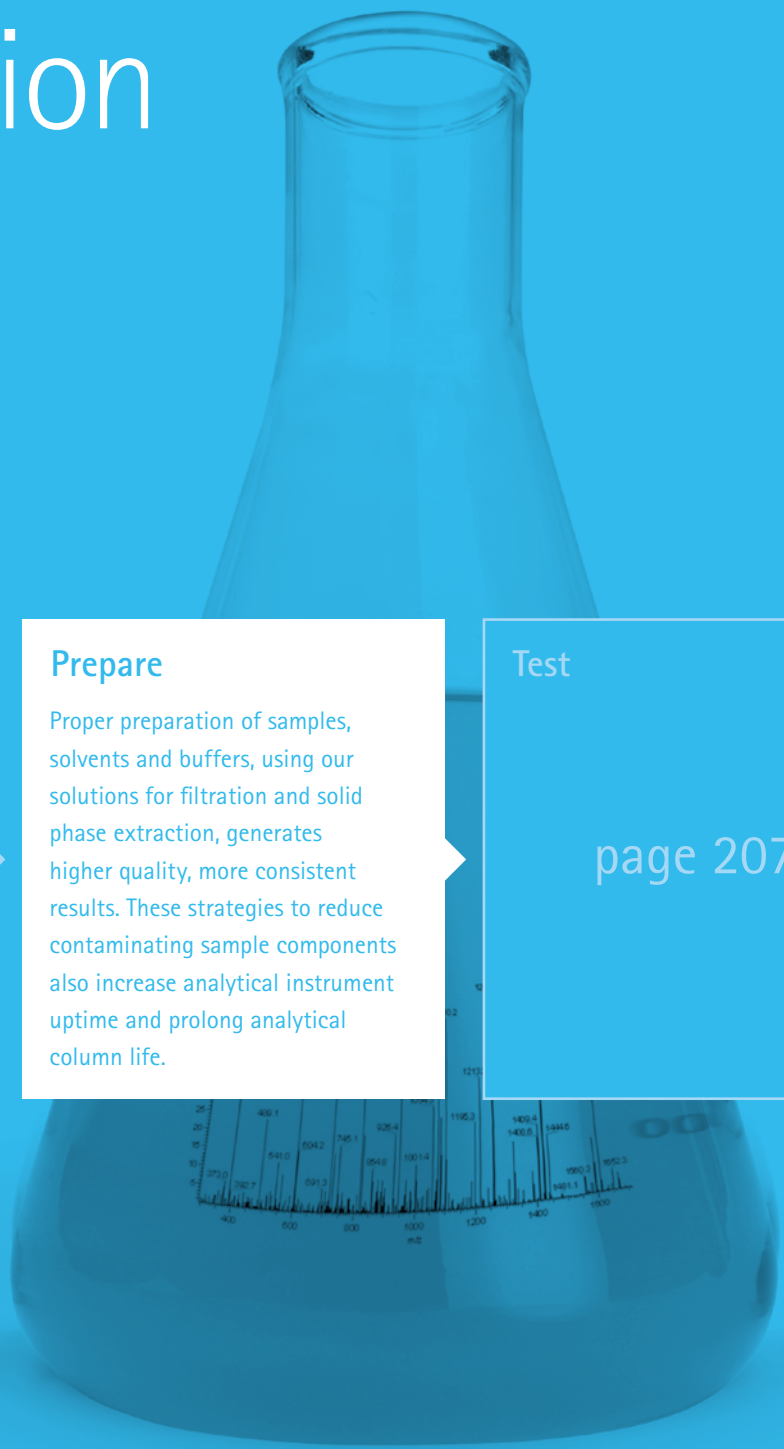
Description	Qty/Pk	Catalogue No.
Hazardous Waste Filtration System, 142 mm	1	YT30142HW
Replacement Parts		
Hand Knob	1	YY2214257
1-1/2 in. TC Silicone Gasket	10	YY2004055
Clamp 1-1/2 in. TC	1	YY2004045
O-ring (2-251), silicone	4	YY2214265
O-ring (2-251), PTFE	1	YY2214253
Underdrain Support, PTFE-coated	1	YT3014257
Legs with Caps, 3/16 in. wrench	3	YY2214251
Handwheel Wrench for 142 mm Holder	1	YY2214252

Description	Qty/Pk	Catalogue No.
Accessories		
Gasket, 1-1/2 in., PTFE-coated fluoroelastomer	10	YY2004057
Tubing for Pressure Use, 1/2 in. I.D.	1	XX6700035
Membrane Filters		
Glass Fiber Filter without Binder, AP40, 142 mm	50	AP4014250*
Glass Fiber Filter without Binder, APFF, 142 mm	50	APFF14250**
Rotary Agitator		
Rotary Agitator, 115 V/60 Hz	1	YT310RAHW

*AP40 filters are recognized in EPA Method 1311 for TCLP analysis.
**APFF filters meet specifications for EPA Method 1311.

For more information visit: www.merckmillipore.com/ParticleMonitoring

Analytical Sample Preparation



Collect

page 125

Prepare

Proper preparation of samples, solvents and buffers, using our solutions for filtration and solid phase extraction, generates higher quality, more consistent results. These strategies to reduce contaminating sample components also increase analytical instrument uptime and prolong analytical column life.

Test

page 207

Solutions for the Complete HPLC/UHPLC Workflow

Obtain more information about your molecules of interest and increasingly fine separation of complex solutions using the newest liquid chromatography technologies, such as high performance liquid chromatography (HPLC) and ultra-high performance liquid chromatography (UHPLC), that feature high sensitivity and throughput. To benefit from these advanced separation systems, you need cutting-edge columns, high purity reagents and state-of-the-art preparation tools for higher purity samples and cleaner mobile phases. Merck Millipore's solutions for liquid chromatography support the entire workflow, delivering higher quality, more consistent results, increased instrument uptime and prolonged column life.

Mobile Phase Preparation

Contaminating solutes may contribute to baseline variability and poor chromatographic performance when bottled water instead of freshly delivered water is used to prepare the mobile phases. Using Milli-Q® water purification systems will ensure that your mobile phases are free of organic contaminants and deliver the best, most reproducible chromatographic results.

Membrane filtration removes contaminating particles from solvents and mobile phases, increasing column life, minimizing backpressure, and preventing system failure. That's why most HPLC/UHPLC instrument manufacturers recommend filtration of mobile phases using either 0.45 or 0.20 µm filters.

Membranes that display the highest particle retention tend to be the most effective at minimizing backpressure. Polypropylene membranes exhibit poor particle retention, and therefore filtering UHPLC mobile phases through polypropylene is the least effective for reducing backpressure buildup. In contrast, filtering the mobile phase through PTFE membranes, which show excellent particle retention, enable the UHPLC system to run without significant backpressure buildup.

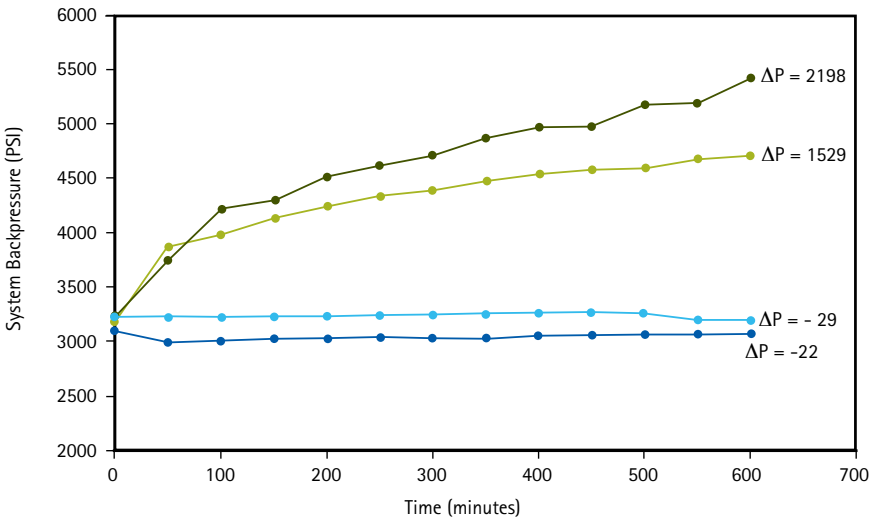
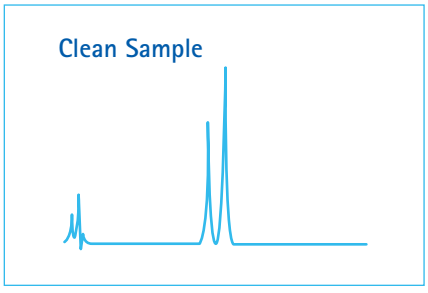
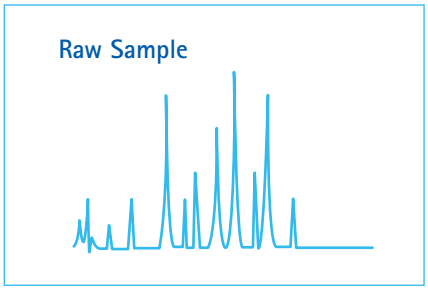


Figure 1. Filtration through 0.2 µm hydrophilic PTFE Millex® filters prevents backpressure buildup on a UHPLC system. Water and acetonitrile were passed through polypropylene or PTFE syringe filters (as indicated in legend), then used 1:1 (v/v) to prepare the mobile phase for UHPLC. The system was run at 0.25 mL/min for 600 min with backpressure recorded every 50 min. ΔP represents total change in backpressure after 600 min.

Sample Preparation

Sample preparation prior to analysis helps to bring a sample to a format that is compatible with the analytical technique, reduces sample complexity, removes interfering impurities from matrix and thereby concentrates the analyte prior to analysis. A typical sample for HPLC/UHPLC needs to be particle-free and completely soluble in the solvent compatible with the chromatography system.





Reduce signal-to-noise ratios and maintain clean baselines by filtering samples with Millex® syringe filters, Millex Samplicity® Filters, or MultiScreen® Filter Plates, depending on your throughput needs. With their broad chemical compatibility, low holdup volumes, and consistent quality, Millex® filters are ideal for preparing samples for HPLC/UHPLC analysis.

In addition to filtration, you can use solid phase extraction with Lichrolut® columns or liquid-liquid extraction with the help of EXtrelut® sorbent to reduce the complexity of your sample, facilitating analysis and improving reproducibility. These tools are not only highly efficient, but they are also easy to use and deliver high recoveries.

Analytical Separation Columns

For reliable, reproducible analytical separations, even for the most challenging analyses, choose from a comprehensive range of high-quality liquid chromatography columns. Thanks to their unique, patented, monolithic silica technology, our Chromolith® columns allow you to perform ultra-fast and robust separations using standard HPLC systems. For all polar and hydrophilic compounds, the proprietary zwitterionic SeQuant® ZIC®-HILIC technology provides straightforward HPLC separations with high flexibility in the selection of separation conditions. The optimally balanced selectivity of Purospher® columns makes them the perfect choice for reversed phase HPLC and UHPLC method development in a wide variety of labs.

Non-Sterile Millex® Syringe Filter Selection Guide

Membrane	Housing	Diameter, mm	Process Volume (hold-up)	Pore Size	Page
Non-sterile Millex® Syringe Filters with Millipore Express PLUS® (PES) Membrane Fastest flow, high throughput	Polypropylene	13	10 mL (≤ 15 µL)	0.22	159
				0.45	
		33	100 mL (≤ 80 µL)	0.22	
				0.45	
Non-sterile Millex® Syringe Filters with Durapore® (PVDF) Membrane Low protein binding	HDPE	4	1 mL (≤10 µL)	0.22	152
				0.45	
	Polypropylene	13	10 mL (≤ 15 µL)	0.22	
				0.45	
	PVC	25	100 mL (≤ 100 µL)	5.0	
	Polypropylene	33	100 mL (≤ 80 µL)	0.22	
				0.45	
Non-sterile Millex® Syringe Filters with Nylon Membrane Broad chemical compatibility	Polypropylene	13	10 mL (≤ 15 µL)	0.20	157
				0.45	
		33	100 mL (≤ 80 µL)	0.20	
				0.45	
Non-sterile Millex® Syringe Filters with LCR (Hydrophilic PTFE) Membrane Lowest extractables and excellent solvent resistance	HDPE	4	1 mL (≤10 µL)	0.20	153
				0.45	
		13	10 mL (≤ 25 µL)	0.20	
				0.45	
		25	100 mL (≤ 100 µL)	0.20	
				0.45	
Non-sterile IC Millex® Syringe Filters with LCR (Hydrophilic PTFE) Membrane Sample preparation for ion chromatography	HDPE	13	10 mL (≤ 25 µL)	0.20	156
				0.45	
		25	100 mL (≤ 100 µL)	0.20	
				0.45	
Non-sterile Millex® Syringe Filter with Fluoropore™ (Hydrophobic PTFE) Membrane Excellent solvent resistance	HDPE	4	1 mL (≤10 µL)	0.20	155
				0.45	
	Polypropylene	13	10 mL (≤ 15 µL)	0.20	
				0.45	
	HDPE	25	100 mL (≤ 100 µL)	0.20	
				0.45	
				5.0	
Non-sterile Millex® Syringe Filters with MCE Membrane General purpose filtration	PVC	25	100 mL (≤ 100 µL)	0.22	160
				0.45	
				0.80	
Automation-Compatible & High Particulate Filtration					
Glass Fiber	HDPE	25	100 mL (<250 µL)	1.0	162, 163
LCR (Hydrophilic PTFE) Membrane with graduated multi-layer glass fiber prefilter	HDPE	25	100 mL (<250 µL)	0.20	
			100 mL (<250 µL)	0.45	
Durapore® (PVDF) Membrane with graduated multi-layer glass fiber prefilter	HDPE	25	100 mL (<250 µL)	0.45	
Nylon Membrane with graduated multi-layer glass fiber prefilter	HDPE	25	100 mL (<250 µL)	0.20	
			100 mL (<250 µL)	0.45	

Non-Sterile Millex® Syringe Filter Selection Guide

Membrane	Pore Size	Dissolution Testing	IC	HPLC	UHPLC	LC-MS	Clarification of Particle-Laden Solutions	Clarification of Aqueous Solutions	Clarification of Organic Solutions	Clarification of Aqueous and Organic Solutions	Clarification of Proteinaceous Solutions	Vent Filtration
Millipore Express® PLUS (PES) Membrane Fastest flow, high throughput	0.22	●	●		●	●	●	●			●	
	0.45	●	●	●			●	●			●	
Durapore® (PVDF) Membrane Low-protein binding	0.22	●			●	●		●			●	
	0.45	●		●		●		●			●	
	5.0						●	●				
Nylon Membrane Broad chemical compatibility	0.20	●			●	●		●	●	●		
	0.45	●		●		●		●	●	●		
LCR (Hydrophilic PTFE) Membrane Lowest extractables and excellent solvent resistance	0.20	●			●	●		●	●	●	●	
	0.45	●		●		●		●	●	●	●	
IC Millex® Syringe Filters with LCR (Hydrophilic PTFE) Membrane Sample preparation for ion chromatography	0.20		●					●	●	●		
	0.45		●					●	●	●		
Fluoropore™(Hydrophobic PTFE) Membrane Excellent solvent resistance	0.20				●				●			●
	0.45			●					●			●
	5.0								●			●
MCE Membrane General purpose filtration	0.22	●						●				
	0.45	●						●				
	0.80						●	●	●			
Glass Fiber Membrane	Glass Fiber							●				
Automation-Compatible & High Particulate Filtration												
Glass Fiber	1.0	●					●	●	●	●		
LCR (Hydrophilic PTFE) Membrane with graduated multi-layer glass fiber prefilter	0.20	●			●	●	●	●	●	●	●	
	0.45	●		●		●	●	●	●	●	●	
Durapore® (PVDF) Membrane with graduated multi-layer glass fiber prefilter	0.45	●		●		●	●	●			●	
Nylon Membrane with graduated multi-layer glass fiber prefilter	0.20	●			●	●	●	●	●	●		
	0.45	●		●		●	●	●	●	●		

Non-Sterile Millex® Syringe Filters with Durapore® Membrane

Low protein binding

Non-sterile Millex® syringe filters with hydrophilic Durapore® (PVDF) membrane provide high flow rates and throughput, low levels of extractables and broad chemical compatibility. Hydrophilic PVDF membranes bind far less protein than nylon, nitrocellulose membranes, or PTFE membranes. Syringe filters are available in two pore sizes and three diameters to optimize results.

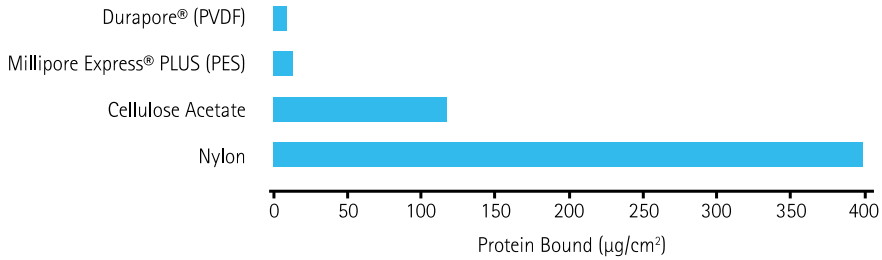
Features & Benefits

- Low protein binding to minimize interaction with your sample and maximize recovery
- Available in 0.22 µm and 0.45 µm pore sizes and three diameters to suit your application needs
- Housing materials are either polypropylene or high density polyethylene (HDPE), offering low levels of extractables and broad chemical compatibility

Applications

Sample Filtration Prior to UHPLC, HPLC and Mass Spec; Solvent Filtration; Filtration of Biological Samples and Protein Solutions

Product Performance



Lowest protein binding with Durapore® PVDF membrane. Membrane disks with a 0.22 µm pore size were exposed to a 1 mg/mL solution of ^{125}I-labeled IgG. The chart shows protein binding after incubation (normalized to membrane surface area).

Specifications

	4 mm Millex® Filters	13 mm Millex® Filters	25 mm Millex® Filters	33 mm Millex® Filters
Housing Material	HDPE	Polypropylene	PVC	Polypropylene
Housing Color	Natural	Yellow band	Clear	Yellow band
Membrane Material	Hydrophilic Durapore® (PVDF)	Hydrophilic Durapore® (PVDF)	Hydrophilic Durapore® (PVDF)	Hydrophilic Durapore® (PVDF)
Pore Sizes Available, µm	0.22, 0.45	0.22, 0.45	5.0	0.22, 0.45
Inlet Fittings	Female Luer-Lok®	Female Luer-Lok®	Female Luer-Lok®	Female Luer-Lok®
Outlet Fittings	Male LuerSlip™, stepped	Male Luer-Slip™	Male Luer-Slip™	Male Luer-Slip™
Filtration Area, cm²	0.1	0.8	3.9	4.5
Process Volume, mL	1	≤10	≤100	≤100
Hold-up Volume, µL	<10	≤15 after air purge	<100	≤80 after air purge
Maximum Pressure, bar (psi)	14 (200)	10 (150)	5.2 (75)	8.6 (125)
Maximum Temperature, °C	45	45	45	45

Ordering Information

Description	Diameter (mm)	Pore Size (µm)	Qty/Pk	Catalogue No.
Millex®-GV Syringe Filter	4	0.22	100	SLGVR04NL
			1000	SLGVR04NK
Millex®-HV Syringe Filter	4	0.45	100	SLHVR04NL
			1000	SLHVR04NK
Millex®-GV Syringe Filter	13	0.22	100	SLGVX13NL
			100	SLGVX13TL*
			1000	SLGVX13NK
Millex®-HV Syringe Filter	13	0.45	100	SLHVX13NL
			100	SLHVX13TL*
			1000	SLHVX13NK
Millex®-GV Syringe Filter	33	0.22	50	SLGV033NS
			250	SLGV033NB
			1000	SLGV033NK
Millex®-HV Syringe Filter	33	0.45	50	SLHV033NS
			250	SLHV033NB
			1000	SLHV033NK
Millex®-SV Syringe Filter	25	5.0	250	SLSV025NB

*Tube Outlet

For more information visit: www.merckmillipore.com/NSmillex

Non-Sterile Millex® Syringe Filters with Hydrophilic PTFE Membrane

Lowest level of extractables and excellent solvent resistance

Hydrophilic PTFE membranes provide the lowest level of extractables and broad chemical compatibility with both aqueous and organic solutions. Hydrophilic PTFE membranes are ideal for preparing samples and mobile phases prior to liquid chromatography (LC) or mass spectrometry (MS) analysis and can be used to filter aqueous solutions without prior wetting. Syringe filters are available in two pore sizes and three diameters to optimize results. The housing is made from a low-extractable, high density polyethylene (HDPE).

Features & Benefits

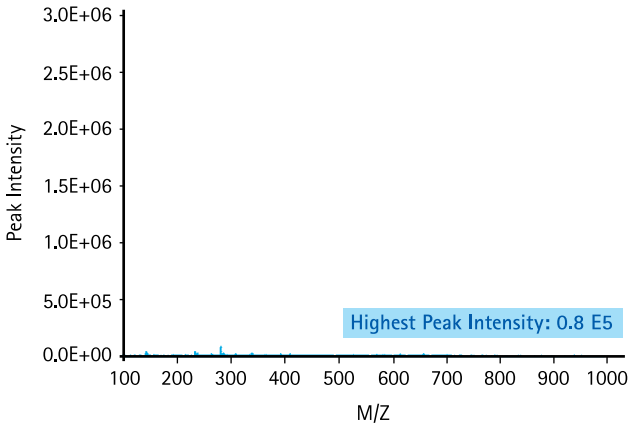
- Lowest level of extractables, optimizing background levels of sensitve analyses like UHPLC and LC-MS
- Compatible with both aqueous and organic solutions, providing broad chemical compatibility and flexibility in the lab
- Available in 0.20 µm and 0.45 µm pore sizes and three diameters to suit your application needs

Applications

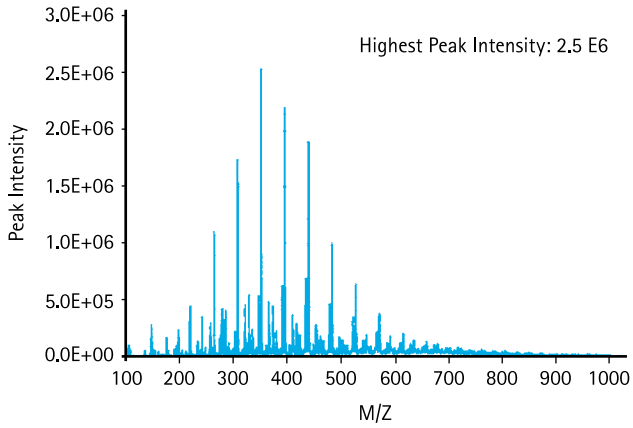
Sample Filtration Prior to UHPLC, HPLC and Mass Spec; Solvent Filtration; Clarification of Aqueous and Organic Solutions

Product Performance

A. Millex® Filter Unit, PTFE



B. Polypropylene



Millex® filters feature low extractables. Mass spectrometry detects few extractable impurities from Millex® syringe filters containing 0.45 µm pore hydrophilic PTFE membrane (A). In contrast, a syringe filter containing 0.45 µm pore polypropylene membrane from another vendor (B) shows significant leaching of impurities.

Specifications

	4 mm Millex® Filters	13 mm Millex® Filters	25 mm Millex® Filters
Housing Material	HDPE	HDPE	HDPE
Housing Color	Natural	Natural	Natural
Membrane Material	Hydrophilic PTFE	Hydrophilic PTFE	Hydrophilic PTFE
Pore Sizes Available, µm	0.20, 0.45	0.20, 0.45	0.20, 0.45
Inlet Fittings	Female Luer-Lok®	Female Luer-Lok®	Female Luer-Lok®
Outlet Fittings	Male Luer-Slip™, stepped	Male Luer-Slip™	Male Luer-Slip™
Filtration Area, cm^2	0.1	0.65	3.9
Process Volume, mL	1	≤10	≤100
Hold-up Volume, µL	<10	≤25 after air purge	<100 after air purge
Maximum Pressure, bar (psi)	14 (200)	7 (100)	7 (100)
Maximum Temperature, °C	45	45	45

Ordering Information

Description	Diameter (mm)	Pore Size (µm)	Qty/Pk	Catalogue No.
Millex®-LG Syringe Filter	4	0.20	100	SLLGR04NL
Millex®-LH Syringe Filter	4	0.45	100	SLLHR04NL
			1000	SLLHR04NK
Millex®-LG Syringe Filter	13	0.20	100	SLLGH13NL
			1000	SLLGH13NK
Millex®-LCR Syringe Filter	13	0.45	100	SLCR013NL
			100	SLCRT13NL*
			1000	SLCR013NK
Millex®-LG Syringe Filter	25	0.20	50	SLLGH25NS
			250	SLLGH25NB
			1000	SLLGH25NK
Millex®-LCR Syringe Filter	25	0.45	50	SLCR025NS
			250	SLCR025NB
			1000	SLCR025NK

*Tube Outlet

For more information visit: www.merckmillipore.com/NSmillex

Non-Sterile Millex® Syringe Filter with Fluoropore™ Membrane

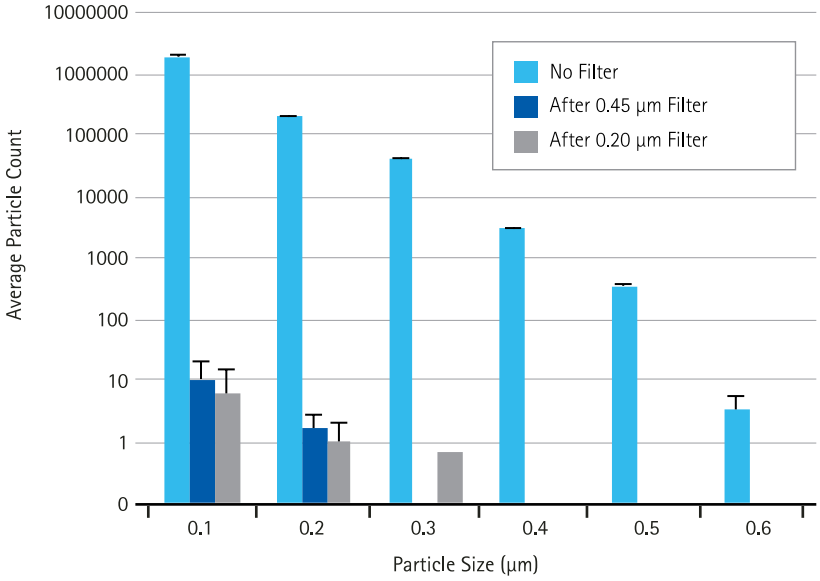
Excellent solvent resistance

Non-sterile Millex® syringe filters with hydrophobic Fluoropore™ (PTFE) membrane provide broad chemical compatibility and are ideal for filtering samples in organic solvents. Hydrophobic Fluoropore™ syringe filters can also be used to prevent back-streaming of atmospheric moisture in venting appications. Syringe filters are available in 0.20 µm and 0.45 µm pore sizes and three diameters to optimize results. The housing is made from a low-extractable, high density polyethylene (HDPE) or polypropylene.

Features & Benefits

- Broad chemical compatibility and excellent solvent resistance with organic solutions
- Available in two pore sizes and three diameters to suit your application needs

Product Performance



Excellent particle retention. Millex® syringe filters of two different pore sizes were used to remove particulates from samples of air. The resulting particulate levels per cubic foot of air, with and without syringe filtration, were measured using a particle counter (three samples per type of filter). Data show excellent particle retention by Millex®filters with Fluoropore™ membrane, as even particles smaller than the nominal pore size were efficiently removed from the samples (note that y axis is on a log scale).

Applications

Fine Particle Removal and Clarification of Organic Solutions, Vent Filtration, Sterilization of Gases

Specifications

	4 mm Millex® Filters	13 mm Millex® Filters	25 mm Millex® Filters
Housing Material	HDPE	Polypropylene	HDPE
Housing Color	Natural	Red band	Natural
Membrane Material	Hydrophobic PTFE	Hydrophobic PTFE	Hydrophobic PTFE
Pore Sizes Available, µm	0.20, 0.45	0.20, 0.45	0.20, 0.45, 5.0
Inlet Fittings	Female Luer-Lok®	Female Luer-Lok®	Female Luer-Lok®
Outlet Fittings	Male Luer-Slip™, stepped	Male Luer-Slip™	Male Luer-Slip™
Filtration Area, cm^2	0.1	0.8	3.9
Process Volume, mL	1	≤10	≤100
Hold-up Volume, µL	<10	≤15 after air purge	<100 after air purge*
Maximum Pressure, bar (psi)	14 (200)	10 (150)	7 (100)
Maximum Temperature, °C	45	45	45

* 5.0 µm device hold-up volume <300 after air purge

Ordering Information

Description	Diameter (mm)	Pore Size (µm)	Qty/Pk	Catalogue No.
Millex®-FG Syringe Filter	4	0.20	100	SLFGR04NL
Millex®-FH Syringe Filter	4	0.45	100	SLFHR04NL
Millex®-FG Syringe Filter	13	0.20	100	SLFGX13NL
			100	SLFGX13TL*
			1000	SLFGX13NK
Millex®-FH Syringe Filter	13	0.45	100	SLFHX13NL
			100	SLFHX13TL*
			1000	SLFHX13NK
Millex®-FG Syringe Filter	25	0.20	50	SLFG025NS
			250	SLFG025NB
			1000	SLFG025NK
Millex®-FH Syringe Filter	25	0.45	50	SLFH025NS
			250	SLFH025NB
			1000	SLFH025NK
Millex®-LS Syringe Filter	25	5.0	50	SLLS025NS

*Tube Outlet

For more information visit: www.merckmillipore.com/NSmillex

Non-Sterile IC Millex® Syringe Filters with Hydrophilic PTFE Membrane

Sample preparation for ion chromatography

Non-sterile ion chromatography (IC) Millex® syringe filters with hydrophilic PTFE membrane provide the lowest IC extractable levels and broad chemical compatibility with both aqueous and organic solutions. Syringe filters are available in two pore sizes and two diameters to optimize results. The housing is made from a low-extractable, high density polyethylene (HDPE). In addition, each unit is individually packaged to minimize the risk of extraneous ionic contamination. Lot release criteria include bubble point, flow rate, housing pressure, downstream particles, and IC levels. A certificate of quality with complete specifications is included in each box.

Features & Benefits

- Lowest level of IC extractables, optimizing background levels in sensitive IC analyses
- Compatible with both aqueous and organic solutions, offering broad chemical compatibility and flexibility in the lab
- Each lot is certified to contain low ion extractable levels
- Available in 0.20 µm and 0.45 µm pore sizes and two diameters to suit your application needs

Applications

Ion Chromatography

Specifications

	13 mm Millex® Filter	25 mm Millex® Filter
Housing Material	HDPE	HDPE
Inlet Fittings	Female Luer-Lok®	Female Luer-Lok®
Outlet Fittings	Male Luer-Slip™	Male Luer-Slip™
Filtration Area, cm^2	0.65	3.9
Process Volume, mL	10	100
Hold-up Volume, µL	<25 after air purge	<100 after air purge
Maximum Inlet Pressure, bar (psi)	7 (100)	7 (100)
Maximum Operating Temperature, °C	45	45

Ordering Information

Description	Diameter (mm)	Pore Size (µm)	Qty/Pk	Catalogue No.
IC Millex®-LG Syringe Filter	13	0.20	100	SLLGC13NL
	25		50	SLLGC25NS
IC Millex®-LH Syringe Filter	13	0.45	100	SLLHC13NL
	25		50	SLLHC25NS

For more information visit: www.merckmillipore.com/NSmillex

Non-Sterile Millex® Syringe Filters with Nylon Membrane

Broad chemical compatibility

Non-sterile Millex® syringe filters with hydrophilic nylon membrane are compatible with a broad range of solvents, making them ideal for sample filtration of most aqueous and organic solvents across the laboratory. Syringe filters are available in two pore sizes and three diameters to optimize results. The housing is made from polypropylene, offering a low level of extractables and broad chemical compatibility.

Features & Benefits

- Compatible with both aqueous and organic solutions, providing broad chemical compatibility and flexibility in the lab
- Available in 0.20 µm and 0.45 µm pore sizes and two diameters to suit your application needs

Applications

Sample Filtration Prior to UHPLC, HPLC and Mass Spec; Solvent Filtration; Clarification of Aqueous and Organic Solutions

Specifications

	13 mm Millex® Filters	33 mm Millex® Filters
Housing Material	Polypropylene	Polypropylene
Housing Color	Purple band	Purple band
Membrane Material	Hydrophilic Nylon	Hydrophilic Nylon
Pore Sizes Available, µm	0.20, 0.45	0.20, 0.45
Inlet Fittings	Female Luer-Lok®	Female Luer-Lok®
Outlet Fittings	Male Luer-Slip™	Male Luer-Slip™
Filtration Area, cm^2	0.8	4.5
Process Volume, mL	≤10	≤100
Hold-up Volume, µL	≤15 after air purge	≤80 after air purge
Maximum Pressure, bar (psi)	10 (150)	8.6 (125)
Maximum Temperature, °C	45	45

Ordering Information

Description	Diameter (mm)	Pore Size (µm)	Qty/Pk	Catalogue No.
Millex®-GN Syringe Filter	13	0.20	100	SLGNX13NL
			100	SLGNX13TL*
			1000	SLGNX13NK
Millex®-HN Syringe Filter	13	0.45	100	SLHNX13NL
			100	SLHNX13TL*
			1000	SLHNX13NK
Millex®-GN Syringe Filter	33	0.20	50	SLGN033NS
			250	SLGN033NB
			1000	SLGN033NK
Millex®-HN Syringe Filter	33	0.45	50	SLHN033NS
			250	SLHN033NB
			1000	SLHN033NK

*Tube Outlet

For more information visit: www.merckmillipore.com/NSmillex

Non-Sterile Millex® Syringe Filters with PES Membrane

Fastest flow, high throughput

Non-sterile Millex® syringe filters with Millipore Express® PLUS polyethersulfone (PES) membrane provide ultrafast filtration of aqueous solutions. This fast-filtering, low protein-binding membrane is preferred by many researchers. Syringe filters are available in two pore sizes and two diameters to optimize results. The housing is made from polypropylene, offering a low level of extractables and broad chemical compatibility.

Features & Benefits

- Low protein binding to minimize interaction with your sample and maximize recovery
- High-throughput PES membrane provides fast filtration for large sample volumes
- Available in 0.22 µm and 0.45 µm pore sizes and two diameters to suit your application needs

Applications

Buffer Filtration, Clarification of Aqueous Solutions

Specifications

	13 mm Millex® Filters	33 mm Millex® Filters
Housing Material	Polypropylene	Polypropylene
Housing Color	Green band	Green band
Membrane Material	Hydrophilic PES Millipore Express® PLUS	Hydrophilic PES Millipore Express® PLUS
Pore Sizes Available, µm	0.22, 0.45	0.22, 0.45
Inlet Fittings	Female Luer-Lok®	Female Luer-Lok®
Outlet Fittings	Male Luer-Slip™	Male Luer-Slip™
Filtration Area, cm^2	0.8	4.5
Process Volume, mL	≤10	≤100
Hold-up Volume, µL	≤15 after air purge	≤80 after air purge
Maximum Pressure, bar (psi)	10 (150)	8.6 (125)
Maximum Temperature, °C	45	45

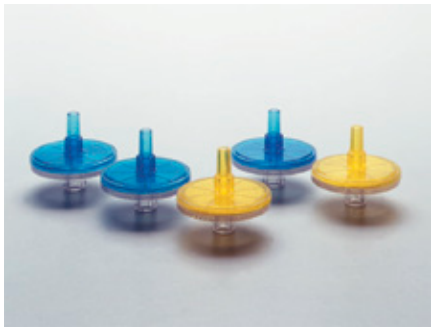
Ordering Information

Description	Diameter (mm)	Pore Size (µm)	Qty/Pk	Catalogue No.
Millex®-GP Syringe Filter	13	0.22	100	SLGPX13NL
			1000	SLGPX13NK
Millex®-HP Syringe Filter	13	0.45	100	SLHPX13NL
			1000	SLHPX13NK
Millex®-GP Syringe Filter	33	0.22	50	SLGP033NS
			250	SLGP033NB
			1000	SLGP033NK
Millex®-HP Syringe Filter	33	0.45	50	SLHP033NS
			250	SLHP033NB
			1000	SLHP033NK

For more information visit: www.merckmillipore.com/NSmillex

Non-Sterile Millex® Syringe Filters with MCE Membrane

Broad application and research use



Non-sterile Millex® syringe filters with hydrophilic mixed cellulose esters (MCE) membrane are widely used in general analytical and research applications. Syringe filters are available in three pore sizes to optimize results. The housing is made from a low-extractable polyvinylidene chloride (PVC).

Features & Benefits

- MCE is the most widely used and referenced general purpose membrane
- Available in 0.22 µm, 0.45 µm and 0.80 µm pore sizes to suit your application needs

Applications

Clarification of Aqueous Solutions, General Laboratory Filtration

Specifications

Housing Material	PVC
Housing Color	Clear top/blue base*
Membrane Material	Hydrophilic MCE
Pore Sizes Available, µm	0.22, 0.45, 0.80, prefilter
Inlet Fittings	Female Luer-Lok®
Outlet Fittings	Male Luer-Slip™
Filtration Area, cm^2	3.9
Process Volume, mL	100
Hold-up Volume, µL	≤100**
Maximum Pressure, bar (psi)	5.2 (75)
Maximum Temperature, °C	45

***0.8 µm device has clear top with green base. Glass prefilter device is natural colored.**

****Hold-up volume does not apply to glass prefilter device.**

Ordering Information

Description	Diameter (mm)	Pore Size (µm)	Qty/Pk	Catalogue No.
Millex®-GS Syringe Filter	25	0.22	250	SLGS025NB
			1000	SLGS02510
Millex®-HA Syringe Filter	25	0.45	100	SLHA025NB
			1000	SLHA02510
Millex®-AA Syringe Filter	25	0.80	250	SLAA025NB
			1000	SLAA025NK
Millex®-AP Syringe Filter	25	NA	50	SLAP02550

For more information visit: www.merckmillipore.com/NSmillex

In-Line Millex® Filter Units (25 mm and 50 mm)

Ideal for in-line sterilization of gases and venting sterile containers

Millex® syringe filter units with hydrophobic Fluoropore™ or Millipore Express® PLUS PES membrane are ideal for in-line sterilization of gases and venting sterile containers, and filters with Fluoropore™ membrane can also be used for sterilizing or clarifying organic solutions. There are also specialized filter units to protect hemodialysis transducers from blood and moisture. The 50 mm Millex® filter units are especially useful for vacuum line protection. All units are bi-directional.

Features & Benefits

- Specialized filter units protect hemodialysis transducers from blood and moisture
- 50 mm Millex® units ideal for vacuum line protection
- All Millex® Hydrophobic PTFE units are bi-directional in flow

Applications

Sterilizing Gases, Vacuum Line Protection, Venting Sterile Containers, Sterilizing and Clarifying Organic Solutions

Specifications

	25 mm Millex® Units	50 mm Millex® Units with PTFE Membrane	50 mm Millex® Units with PES Membrane
Housing Material	PVC	Polypropylene	Acrylic
Filtration Area, cm²	3.9	19.6	19.6
Maximum Inlet Pressure, bar (psi)	5.2 (75)	4.1 (60)	4.1 (60)
Maximum Operating Temperature, °C	45	121	45

Ordering Information

Description	Filter Diameter (mm)	Pore Size (µm)	Membrane	Fitting Inlet	Fitting Outlet	Sterilization	Qty/Pk	Catalogue No.
Millex®-FG Filter Unit	25	0.2	Fluoropore™ PTFE	Female Luer-Lok®	Male Luer Slip™	Ethylene oxide	50	SLFG025LS
				Female Luer-Lok®	Male Luer-Lok®	Ethylene oxide	50	SLFGL25BS
				Female Luer-Lok®	Male Luer Slip™	Autoclavable	50	SLFG02550
Millex®-FG$_{50}$ Filter Unit	50	0.2	Fluoropore™ PTFE	Stepped hose barb with female Luer-Slip™ interior	Stepped hose barb with female Luer-Slip™ interior	Autoclavable	10	SLFG05010
				Stepped hose barb with female Luer-Slip™ interior	Stepped hose barb with female Luer-Slip™ interior	Autoclavable	100	SLFG05000
Millex®-FG$_{50}$ Filter Unit	50	0.2	Fluoropore™ PTFE	Stepped hose barb with female Luer-Slip™ interior	1/8 in. NPTM	Autoclavable	10	SLFG55010
Millex®-FG$_{50}$ Filter Unit	50	0.2	Fluoropore™ PTFE	Stepped hose barb with female Luer-Slip™ interior	1/8 in. NPTM	Autoclavable	10	SLFG65010
				Stepped hose barb with female Luer-Slip™ interior	1/8 in. NPTM	Autoclavable	100	SLFG65000
Millex®-FG$_{50}$ Filter Unit	50	0.2	Fluoropore™ PTFE	1/8 in. NPTM	1/8 in. NPTM	Autoclavable	10	SLFG75010
				1/8 in. NPTM	1/8 in. NPTM	Autoclavable	100	SLFG75000
Millex®-FG$_{50}$ Filter Unit	50	0.2	Fluoropore™ PTFE	Stepped hose barb with female Luer-Slip™ interior	Stepped hose barb with female Luer-Slip™ interior	Autoclavable	10	SLFG85010
				Stepped hose barb with female Luer-Slip™ interior	Stepped hose barb with female Luer-Slip™ interior	Autoclavable	100	SLFG85000
Millex®-FH$_{50}$ Filter Unit	50	0.45	Fluoropore™ PTFE	Stepped hose barb with female Luer-Slip™ interior	Stepped hose barb with female Luer-Slip™ interior	Autoclavable	10	SLFH05010
				Stepped hose barb with female Luer-Slip™ interior	Stepped hose barb with female Luer-Slip™ interior	Autoclavable	10	SLFH05000
Millex®-FA$_{50}$ Filter Unit	50	1	Fluoropore™ PTFE	Stepped hose barb with female Luer-Slip™ interior	Stepped hose barb with female Luer-Slip™ interior	Autoclavable	100	SLFA05010
				Stepped hose barb with female Luer-Slip™ interior	Stepped hose barb with female Luer-Slip™ interior	Autoclavable	10	SLFA05000
Millex®-GP$_{50}$ Filter Unit	50	0.22	Millipore Express® PLUS PES	Stepped hose barb with female Luer-Slip™ interior	Stepped hose barb with female Luer-Slip™ interior	Gamma ir-radiated	10	SLGP05010
				Stepped hose barb with female Luer-Slip™ interior	Stepped hose barb with female Luer Slip™ interior and filling bell	Gamma ir-radiated	10	SLGPB5010
Transducer Protectors								
Dualex™ Ultra Filter Unit	25	0.22	Durapel™ PVDF	Female Luer-Lok®	Male Luer-Lok®	Ethylene oxide	50	SLGVS25US
				Female Luer-Lok®	Male Luer Slip™	Ethylene oxide	50	SLGVS25PS
				Female Luer-Slip™	Male Luer Slip™	Ethylene oxide	50	SLGVS25XS

25 mm Automation-Compatible Filter Units

High-throughput filtration

Automation-compatible, non-sterile Millex® syringe filter units provide efficient filtration for dissolution testing and other automated sample preparation applications, especially for pharmaceutical product analysis. These filters feature high-density polyethylene housing and a wide choice of membrane types, with or without prefilters, to fit any application need. The filters are designed with a pressure-resistant, domed housing and an optimized Luer-Lok® connection to ensure reliable delivery by automated systems.

Features & Benefits

- Domed housing ensures reliable delivery of filters
- Pressure-resistant housing resists bursting
- Luer-Lok® connection optimized for precise alignment and fit
- Available in either bulk or delivery tubes for use with automated filter-changing systems

Applications

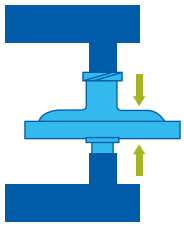
Drug Dissolution Testing, Automated Sample Preparation, Clarification of Solutions Containing High Particle Levels

Specifications

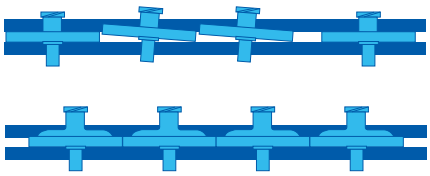
Housing Material	HDPE
Inlet Fittings	Female Luer-Lok®
Outlet Fittings	Male Luer-Slip™
Filtration Area, cm²	3.9
Process Volume, mL	100
Hold-up Volume, µL*	<100 (membrane); <200 (membrane and prefilter)
Maximum Inlet Pressure, bar (psi)	7 (100)
Maximum Operating Temperature, °C	45

*After air purge

Product Performance



A rigid domed housing design helps prevent backpressure, which can cause a workstation shut-down.



The domed housing of automation-compatible 25 mm Millex® syringe filters enables smooth, reliable delivery by eliminating shingling between filters in the transport rack.

Advantage: our automation-compatible syringe filters feature a rigid domed housing design that prevents backpressure buildup and also prevents shingling between filters, inside automated workstations.

Ordering Information

Description	Pore Size (µm)	Qty/Pk	Catalogue No.
Borosilicate glass fiber membrane (APFB) for clarifying aqueous and organic solutions containing high particle levels			
Millex®-PB Filter Unit	1.0	200 (8 x 25)	SLPBDZ5NZ
	1.0	1000	SLPBDZ5NK
Low protein-binding Durapore® (PVDF) membrane for clarifying aqueous and mild organic solutions			
Millex®-HV Filter Unit	0.45	200 (8 x 25)	SLHVDZ5NZ
		1000	SLHVDZ5NK
Low protein-binding Durapore® (PVDF) membrane and glass fiber prefilter for clarifying aqueous and mild organic solutions containing high particle levels			
Millex®-HV/PB Filter Unit	0.45	200 (8 x 25)	SLHVBZ5NZ
		1000	SLHVBZ5NK
Nylon membrane for clarifying aqueous and organic solutions			
Millex®-GN Filter Unit	0.2	200 (8 x 25)	SLGNDZ5NZ
		1000	SLGNDZ5NK
Millex®-HN Filter Unit	0.45	200 (8 x 25)	SLHNDZ5NZ
		1000	SLHNDZ5NK
Nylon membrane and glass fiber prefilter for clarifying aqueous and organic solutions containing high particle levels			
Millex®-HN/PB Filter Unit	0.45	200 (8 x 25)	SLHNBZ5NZ
		1000	SLHNBZ5NK
Low protein-binding hydrophilic LCR (PTFE) membrane for clarifying aqueous and organic solutions			
Millex®-LCR Filter Unit	0.2	200 (8 x 25)	SLLGDZ5NZ
		1000	SLLGDZ5NK
	0.45	200 (8 x 25)	SLCRDZ5NZ
		1000	SLCRDZ5NK
Low protein-binding hydrophilic LCR (PTFE) membrane and glass fiber prefilter for clarifying aqueous and organic solutions containing high particle levels			
Millex®-LCR/PB Filter Unit	0.45	200 (8 x 25)	SLCRBZ5NZ
		1000	SLCRBZ5NK

For more information visit: www.merckmillipore.com/NSmillex

Non-Sterile Millex® HPF Syringe Filters

Filter particle-laden or viscous samples

Non-sterile HPF Millex® filters include a graduated glass fiber prefilter to remove larger particles and either a 0.20 µm or 0.45 µm membrane filter for fine filtration. This combination of membranes provides significantly greater throughput than standard filters without prefiltration media, especially when filtering particle-laden solutions. HPF Millex® filters are available in bulk for individual sample filtration and in tubes for use with automated filter-changing systems. The filters feature a pressure-resistant, domed housing and an optimized Luer-Lok® connection to ensure reliable delivery by automated systems.

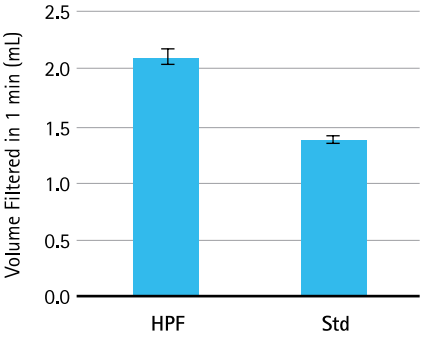
Features & Benefits

- Two to four times greater throughput than syringe filters without prefilters
- Domed housing ensures reliable delivery from automated filter-changing systems
- Pressure-resistant housing resists bursting
- Luer-Lok® connection optimized for precise alignment and fit
- Available in either bulk or delivery tubes for use with automated filter-changing systems

Applications

Drug Dissolution Testing, Automated Sample Preparation, Clarification of Solutions Containing High Particle Levels

Product Performance



Faster filtration for hard-to-filter solutions. A 25 mm Millex® HPF syringe filter and a standard 25 mm Millex® filter, both with 0.2 µm hydrophilic PTFE membrane, were used to filter a 1% solution of Pepto-Bismol® in Milli-Q® water using a pressure vessel set to 10 psi. Filtrate was collected in tared borosilicate tubes. The Millex® HPF filter enabled filtration of a higher volume of solution in one minute compared to the standard filter.

Specifications

Housing Material	HDPE
Inlet Fittings	Female Luer-Lok®
Outlet Fittings	Male Luer-Slip™
Filtration Area, cm²	3.9
Process Volume, mL	100
Hold-up Volume, µL	250
Maximum Inlet Pressure, bar (psi)	7 (100)
Maximum Operating Temperature, °C	45

Ordering Information

Description	Pore Size (µm)	Qty/Pk	Catalogue No.
Nylon membrane and graduated glass fiber prefilter for clarifying aqueous and mild organic solutions containing high particle levels			
Millex®-HPF/Nylon Filter Unit	0.20	50	SLGNM25NS
		1000	SLGNM25NK
	0.45	50	SLHNM25NS
		1000	SLHNM25NK
		200 (8 x 25)	SLHNMZ5NZ*
Low protein binding hydrophilic (PTFE) membrane and glass fiber prefilter for clarifying aqueous and organic solutions containing high particle levels.			
Millex®-HPF/LG/LCR Filter Unit	0.20	50	SLLGM25NS
		1000	SLLGM25NK
	0.45	50	SLCRM25NS
		1000	SLCRM25NK
Low protein binding Durapore® (PVDF) membrane and graduated glass fiber prefilter for clarifying proteinaceous solutions containing high particle levels			
Millex®-HPF/HV Filter Unit	0.45	50	SLHVM25NS
		1000	SLHVM25NK
		200 (8 x 25)	SLHVMZ5NZ*

*Automation-compatible

For more information visit: www.merckmillipore.com/NSmillex

Samplicity® Filtration System

Multi-sample vacuum filtration system

The Samplicity® Filtration System provides a convenient, high-throughput alternative to syringe-tip filters when preparing samples for chromatography. The easy-to-use Samplicity® system is the first vacuum-driven system with the designed-in flexibility to filter 1 to 8 samples directly into standard HPLC vials. Just attach a vacuum pump, load samples with a standard pipettor and flip the lever to recover particulate-free samples—even those with high viscosity or particulates—in seconds. In addition, the system has a low hold-up volume, which allows processing of samples as small as 300 µL.

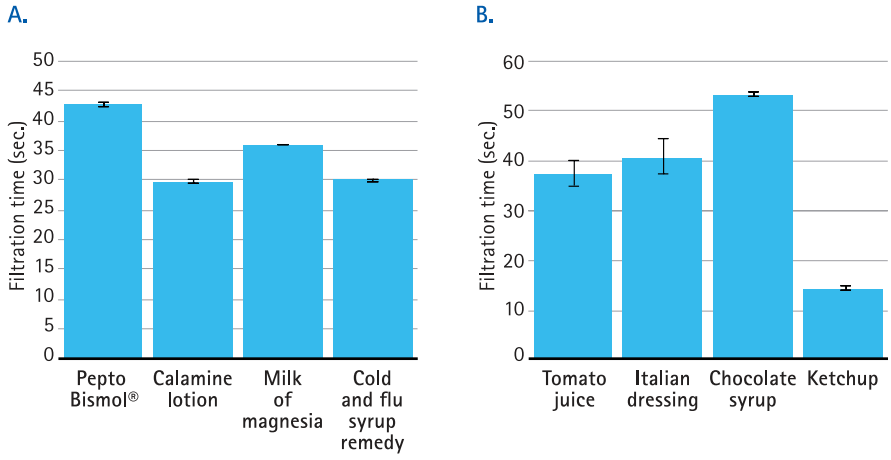
Features & Benefits

- Higher throughput with simultaneous vacuum filtration of up to eight samples
- Easy sample preparation of even highly viscous or particulate-laden mixtures
- Ergonomic alternative to syringe filters
- Millex Samplicity® membrane filters provide long-trusted quality with low extractables and low analyte binding

Applications

Sample Filtration Prior to UHPLC, HPLC and Mass Spec; Filtration of Hard-to-Filter Samples

Product Performance



Concentration	2%	2%	100%	5%	100%	25%	25%	25%
Viscosity (cP)	2.30	298.3	10088.00	2.20	18600	12.07	24.73	252.33

Efficient filtration of hard-to-filter samples. Hydrophilic PTFE Millex Samplicity® filters (0.45 µm) efficiently processed hard-to-filter pharmaceutical samples (A) and food/beverage samples (B) in seconds. Filtration times were the average of 4 replicates and error bars represent standard deviation.

Specifications

	PTFE	Durapore® PVDF
Housing Material	HDPE	HDPE
Housing Color	White	White
Membrane Material	Hydrophilic PTFE	Hydrophilic Durapore® PVDF
Pore Sizes	0.20 µm, 0.45 µm	0.45 µm
Process Volume, mL	0.3–1.6	0.3–1.6
Hold-up Volume, µL	<100	<100
Chemical Compatibility	Few limitations	Aqueous, some solvents
Inlet Fitting	Easy loading funnel	Easy loading funnel
Outlet Fitting	Tip for smooth transfer to vial	Tip for smooth transfer to vial

Ordering Information

Description	Pore Size (µm)	Qty/Pk	Catalogue No.
Samplicity® Filtration System, Glossy Green		1	SAMPSYSGR
Samplicity® Filtration System, Bold Blue		1	SAMPSYSBL
Millex Samplicity® Filters Hydrophilic PTFE	0.20	96	SAMPLG001
	0.45	96	SAMPLCR01
	0.20	384	SAMPLG004
	0.45	384	SAMPLCR04
Millex Samplicity® Filters Hydrophilic PVDF	0.45	96	SAMPHV001
		384	SAMPHV004

For more information visit: www.merckmillipore.com/samplicity

MultiScreen® Filter Plates for Enzyme Assays

Save time and sample, increase consistency

Enzyme assays are widely used in life science research and compound screening. Filter plates, by facilitating the separation of the products from the reactants in enzymatic reactions, enable reliable, highly sensitive, and automation-compatible assays. MultiScreen®$_{HTS}$ filter plates set the standard for filtration-based enzyme assays. These versatile systems are widely used for kinase, phosphatase, protease and endonuclease assays, as well as second messenger assays such as for cAMP, cGMP, phosphodiesterase (PDE), Nitric Oxide (NO), Ca^{2+} and inositols. The filtration-based protocol produces specific, reliable results that are well-referenced in literature.

Features & Benefits

- Saves time and sample, reduces solvent and radioactive wastes
- Multiple configurations to match your application
- Automation compatible
- Superior vacuum filtration and filtrate collection for better washing and consistent data

Applications

Protein Kinase Assays with Peptide Substrates, Other Enzyme Assays, Second Messenger Assays

Specifications

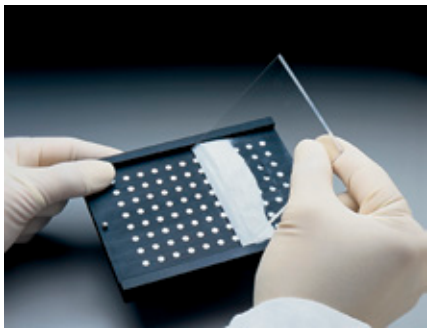
Dimensions, cm	128 x 85.5 x 14.6
Pore Size	0.65 µm
Sterility	Non-sterile

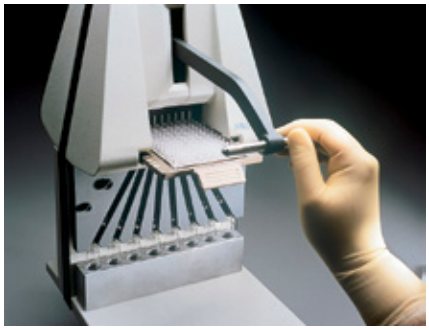
Ordering Information

Description	Membrane Type	Well Volume (mL)	Device Material	Qty/Pk	Catalogue No.
MultiScreen®$_{HTS}$ plates with negatively charged membrane for enzyme assays					
MultiScreen®$_{HTS}$-PH Plate, 96 well	Negatively Charged Phosphocellulose	0.5	Barex®/TiO_2	10	MSPHN6B10
				50	MSPHN6B50
MultiScreen®$_{HTS}$+ Hi Flow PH Plate, 96 well	Negatively Charged Phosphocellulose/ polyester mesh	0.5	Barex®/TiO_2	50	MSPHNXB50
MultiScreen®$_{HTS}$-PH Plate, 384 well	Negatively Charged Phosphocellulose/ polyester mesh	0.1	Styrene acrylonitrile (SAN)/TiO_2	10	MZPHN0W10
				50	MZPHN0W50
MultiScreen® Classic plates with negatively charged membrane for enzyme assays					
MultiScreen®-PH Plate, 96 well	Negatively Charged Phosphocellulose	0.5	Barex®/TiO_2	50	MAPHN0B50

MultiScreen® Filter Plate Accessories

For use with MultiScreen® Plates





MultiScreen® column loaders let you combine the cost savings of bulk media with the convenience of 96-well filtration plates. All 96 wells are loaded simultaneously and uniformly, eliminating the need for pipetting slurries or using prepacked columns. MultiScreen® accessories for radiometric assay detection include the MultiScreen® Punch Kit. After completing your multiwell radioactive assay, you can use the punch and disposable punch tips to simultaneously remove filters from eight wells of a MultiScreen® plate and distribute them into eight scintillation vials for detection. The patented punch tips remove each filter from its well separately, thereby eliminating the risk of cross-contamination and increasing reproducibility.

Applications

96-Well Chromatography, Radiometric Binding Assays

Ordering Information

Description	Qty/Pk	Catalogue No.
Column Loaders for 96-Well Chromatoghraphy in Classic MultiScreen® Plates		
Centrifuge Alignment Frame	4	MACF09604
MultiScreen® Column Loader, 100 µL	1	MACL09600
MultiScreen® Column Loader, 25 µL	1	MACL09625
MultiScreen® Column Loader, 45 µL	1	MACL09645
MultiScreen® Column Loader, 80 µL	1	MACL09680
MultiScreen® Column Loader Scraper	3	MACL0SC03
Radioactive Assay Detection Accessories		
Disposable Punch Tips	5 x 10	MADP19650
MultiScreen® Multiple Punch	1	MAMP09608
Carrier Rack for 4 mL Vials	1	MACR08124
Carrier Rack for 7 mL Vials	1	MACR08127
Carrier Rack for 12 mm x 75 mm Tubes	1	MACR81275
MultiScreen®$_{HTS}$ Plate Carrier Slide (required for punching HTS Plates)	1	MSCP09600
Packard TopCount Adapter for MultiScreen®$_{HTS}$ 96-well Filter Plates	50	MSTPCWH50

MultiScreen®$_{HTS}$-PCF Filter Plates for Solubility Assays

Increased screening throughput and efficiency

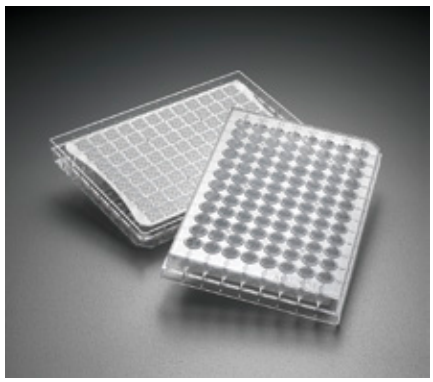
Determining water solubility is an important early step in the drug discovery and development process. Insoluble precipitates cause false positives in bioassays, potentially wasting valuable resources. Water solubility also influences drug absorption and can help predict its ADME properties. MultiScreen®$_{HTS}$-PCF filter plates have made early-stage solubility screening possible. Compared to traditional shake-flask methods, filter plate methods use low amounts of compounds, are reliable, automatable, and fast. Results are highly reproducible and correlate with published literature values. Unlike other high-throughput methods, this method measures compounds in solution.

Features & Benefits

- Increased screening throughput and efficiency saving time and sample over the shake-flask method
- Low non-specific binding
- 90-minute protocol
- Validated for high drug recovery
- Automation-compatible

Applications

Solubility Assays



Specifications

	Standard Plate	Deepwell Solvinert	Collection Plates
Dimensions, cm	128 x 85.5 x 14.6	128 x 85.5 x 40.7	128 x 85.5 x 40.7
Well Volume, mL	0.5	1.9	
Number of Wells	96	96	96
Sterility	Non-sterile	Non-sterile	Non-sterile

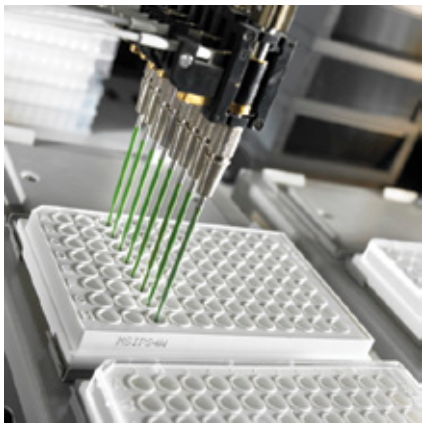
Ordering Information

Description	Membrane Type	Pore Size (µm)	Device Material	Qty/Pk	Catalogue No.
MultiScreen® Plates					
MultiScreen®$_{HTS}$-PCF Filter plate	Polycarbonate	0.4	Styrene	10	MSSLBPC10
				50	MSSLBPC50
MultiScreen® Solvinert Plate	Hydrophilic PTFE	0.45	Polyolefin copolymer	10	MSRLN0410
				50	MSRLN0450
MultiScreen® Deep Well Solvinert Plate	Hydrophilic PTFE	0.45	Polyolefin copolymer	10	MDRLN0410
Required Equipment					
96-well Polystyrene Collection Plate	--	--	Polystyrene	100	MSCPNPS00
96-well MultiScreen® UV Analysis Collection Plate	--	--	Polypropylene	40	MSCPNUV40
96-well Polypropylene V-bottom Collection Plate	--	--	Polypropylene	100	MSCPNPP00

For more information visit: www.merckmillipore.com/cellculture

MultiScreen® Filter Plates with Durapore® Membrane

High-throughput filtration with low protein binding



Durapore® PVDF membranes provide high flow rates and throughput, low levels of extractables and broad chemical compatibility. Hydrophilic Durapore® membranes bind far less protein than nylon, nitrocellulose or PTFE membranes.

Features & Benefits

- Multiple configurations and applications
- Chemical compatibility
- Automation-compatible
- Superior vacuum filtration and filtrate collection

Applications

Receptor/Ligand Binding Assays, Protein Kinase/Phosphatase Precipitation Assays, Bead-Based Assays

Ordering Information

Membrane Type/Pore Size	Number of Wells	Well Volume (mL)	Device Material	Sterility	Qty/Pk	Catalogue No.
MultiScreen® Filter Plates with Durapore® Membrane						
Durapore® PVDF, 1.2 µm	96	0.05 - 0.25	Styrene	Non-sterile	10	MSBVN1210
			Styrene	Non-sterile	50	MSBVN1250
			Barex®/TiO_2	Non-sterile	50	MSBVN1B50
			Styrene	Sterile	10	MSBVS1210
Durapore® PVDF, 0.65 µm	96	0.05 - 0.25	Styrene	Non-sterile	10	MSDVN6510
			Styrene	Non-sterile	50	MSDVN6550
			Barex®/TiO_2	Non-sterile	50	MSDVN6B50
Durapore® PVDF, 0.22 µm	96	0.05 - 0.25	Styrene	Non-sterile	10	MSGVN2210
			Styrene	Non-sterile	50	MSGVN2250
			Barex®/TiO_2	Non-sterile	50	MSGVN2B50
			Styrene	Sterile	10	MSGVS2210
Durapore® PVDF, 0.45 µm	96	0.05 - 0.25	Styrene	Non-sterile	10	MSHVN4510
			Styrene	Non-sterile	50	MSHVN4550
			Barex®/TiO_2	Non-sterile	50	MSHVN4B50
			Styrene	Non-sterile	10	MSHVS4510
	384	0.02 - 0.1	Styrene	Non-sterile	10	MZHVN0W10
			Styrene	Non-sterile	50	MZHVN0W50
	96	<2.0	Polypropylene	Non-sterile	25	MVHVN4525

MultiScreen® Filter Plates with Glass Fiber Filters

High-throughput clarification and prefiltration

Glass fiber filters with binder resin have superior wet strength and are excellent for qualitative analysis and prefiltration, especially for heavily contaminated or particulate-laden samples. They are also widely used for clarification of aqueous solutions.

Features & Benefits

- Multiple configurations and applications
- Chemical compatibility
- Automation-compatible
- Superior vacuum filtration and filtrate collection

Applications

Receptor/Ligand Binding Assays, Sample Preparation, TCA Precipitation of Protein

Ordering Information

Description	Membrane Type/Pore Size	Number of Wells	Device Material	Sterility	Qty/Pk	Catalogue No.
MultiScreen®$_{HTS}$ Filter Plates with Glass Fiber Prefilter						
MultiScreen®$_{HTS}$ FB Plate	Glass fiber FB 1.0 µm/0.65 µm Durapore® PVDF	96	Barex®/TiO_2	Non-sterile	10	MSFBN6B10
					50	MSFBN6B50
MultiScreen®$_{HTS}$+ Hi Flow FB Plate	Glass fiber FB 1.0 µm/polyester mesh	96	Barex®/TiO_2	Non-sterile	50	MSFBNXB50
MultiScreen®$_{HTS}$ FB Plate	Glass fiber FB 1.0 µm/polyester mesh	384	Barex®/TiO_2	Non-sterile	10	MZFBN0W10
					50	MZFBN0W50
MultiScreen®$_{HTS}$ FC Plate	Glass fiber FC 1.2 µm/0.65 µm Durapore® PVDF	96	Barex®/TiO_2	Non-sterile	10	MSFCN6B10
					50	MSFCN6B50
MultiScreen®$_{HTS}$+ Hi Flow FC Plate	Glass fiber FC 1.2 µm/polyester mesh	96	Barex®/TiO_2	Non-sterile	50	MSFCNXB50
MultiScreen®$_{HTS}$ FC Plate	Glass fiber FC 1.2 µm/polyester mesh	384	Barex®/TiO_2	Non-sterile	10	MZFCN0W10
					50	MZFCN0W50
Harvest Plates – MultiScreen® Plates with Glass Fiber for Traditional Cell Harvesting Assays						
MultiScreen® Harvest Plate, FB	Glass fiber FB 1.0 µm	96	Barex®/TiO_2	Non-sterile	60	MAHFB1H60
MultiScreen® Harvest Plate, FC	Glass fiber FC 1.2 µm	96	Barex®/TiO_2	Non-sterile	60	MAHFC1H60
MultiScreen® Classic 96-well Plates with Glass Fiber Prefilter						
MultiScreen® Glass Fiber B Opaque	Glass fiber FB 1.0 µm/0.65 µm Durapore® PVDF	96	Barex®/TiO_2	Non-sterile	50	MAFBN0B50
MultiScreen® Glass Fiber C Opaque	Glass fiber FC 1.2 µm/0.65 µm Durapore® PVDF	96	Barex®/TiO_2	Non-sterile	50	MAFCN0B50
MultiScreen® High Volume with Glass Fiber						
MultiScreen® High Volume with Glass Fiber C	Glass fiber FC 1.2 µm	96	Polypropylene	Non-sterile	25	MVFCN1225

Membrane Selection Guide

Microporous Membranes Organized by Application

	Durapore® PVDF	MF-Millipore™ MCE	Millipore Express® PLUS PES	Isopore™ Polycarbonate	Fluoropore™ PTFE	Omnipore™ PTFE	Mitex™ PTFE	LCR PTFE	V-Series MCE	Nylon	Silver	PVC
Lab Applications												
Clarification of cell lysates and tissue homogenates	●		●									
Cell cytology		●		●								
Sterilizing liquid filtration	●	●	●									
Air sterilization					●							
Mycoplasma reduction	●		●									
Solvent filtration	●				●	●	●	●		●		
Tissue culture media filtration	●		●									
Microdialysis of DNA and proteins									●			
Fluorescent bacteriological assays				●								
General filtration and clarification of aqueous solutions	●	●	●							●		
Clarifying acids and bases	●		●			●	●	●		●		
Chemotaxis				●								
SEM analysis				●								
Epifluorescence microscopy				●								
Venting applications					●		●					
HPLC solvent filtration	●							●		●		
Environmental Monitoring Applications												
Alpha particle monitoring					●							
Air monitoring		●		●	●		●				●	●
Industrial particle monitoring		●					●	●				●
Particle collection and analysis		●										
Gravimetric analysis		●		●								

NOTE: This chart provides general recommendations.
Contact your local Merck Millipore technical service representative to discuss the requirements of your specific application:
www.merckmillipore.com/techservice

Membrane Selection Guide

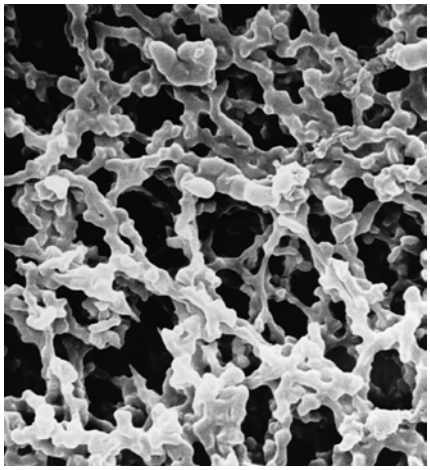
Microporous Membranes Organized by Performance

Membrane Type	Surface Chemistry	Membrane Code[4]	Pore size (µm)	Typical Flow Rate[0] Water (mL/min/cm²/psi)[1]	Air (L/min/cm²/psi)[2]	Min. Ave. Bubble Pt. (Air with H_2O, psi)[3]	Refractive Index
MF-Millipore™ MCE	Hydrophilic	VSWP	0.025	0.0	0.0	306.0	1.50
		VMWP	0.05	0.1	0.0	255.3	1.50
		VCWP	0.1	0.1	0.1	204.5	1.50
		GSWP	0.22	1.4	0.3	51.1	1.51
		PHWP	0.3	2.4	0.5	34.8	1.51
		HAWP	0.45	4.5	0.8	31.9	1.51
		DAWP	0.65	10.6	2.3	17.0	1.51
		AAWP	0.8	14.3	2.7	14.5	1.51
		RAWP	1.2	20.4	3.5	11.0	1.52
		SSWP	3	24.1	4.9	10.2	1.50
		SMWP	5	43.7	6.4	6.1	1.50
		SCWP	8	46.8	6.9	6.1	1.52
Millipore Express® PLUS PES	Hydrophilic	GPWP	0.22	1.5	0.5	20.2	NA
		HPWP	0.45	2.3	1.1	10.0	NA
Durapore® PVDF	Hydrophilic	VVLP	0.1	≥ 0.33	0.1	72.5	1.42
		GVHP	0.22	≥ 1	0.2	50.0	1.42
		HVLP	0.45	≥ 2.6	0.9	22.5	1.42
		DVPP	0.65	≥ 6	1.1	16.0	1.42
		SVLP	5	≥ 15.4	1.6	2.9	1.42
Isopore™ polycarbonate	Hydrophilic	VCTP	0.1	0.2	0.1	101.0	1.60
		GTTP	0.2	1.0	0.3	58.0	1.60
		GTBP	0.2	0.7	0.3	75.4	1.60
		HTBP	0.4	1.2	0.4	42.1	1.60
		DTTP	0.6	2.3	0.8	17.0	1.60
		ATTP	0.8	4.1	1.4	13.0	1.60
		RTTP	1.2	6.2	2.3	10.0	1.60
		TTTP	2	8.5	2.0	5.0	1.60
		TSTP	3	29.0	4.9	3.0	1.60
		TMTP	5	39.4	5.4	1.9	1.60
		TETP	8	44.0	5.5	1.3	1.60
		TCTP	10	114.7	7.2	1.0	1.60
Nylon	Hydrophilic	GNWP	0.2	0.6	0.2	42.1	NA
		HNWP	0.45	1.1	0.3	30.0	NA
		ANWP	0.8	1.4	0.3	8.0	NA
		RNWP	1.2	1.6	0.5	5.9	NA
LCR PTFE	Hydrophilic	FHLC	0.45	1.6	0.6	11.0	NA
Omnipore™ PTFE	Hydrophilic	JVWP	0.1	0.1	0.4	342.3	NA
		JGWP	0.2	0.3	0.7	197.3	NA
		JHWP	0.45	1.1	1.2	114.6	NA
		JAWP	1	3.4	3.4	52.2	NA
		JMWP	5	11.4	5.3	30.5	NA
		JCWP	10	22.7	6.8	10.2	NA
Fluoropore™ PTFE	Hydrophobic	FGLP	0.22	0.9	0.4	14.5	NA
		FHLP	0.45	1.3	1.6	9.1	NA
		FHUP	0.45	2.0	1.1	9.1	NA
		FALP	1	4.8	2.7	7.3	NA
		FSLW	3	13.8	6.4	1.5	NA
Mitex™ PTFE	Hydrophobic	LSWP	5	14.1	2.0	0.7	NA
		LCWP	10	32.3	5.0	0.4	NA
Durapore® PVDF	Hydrophobic	VVHP	0.1	≥ 0.33	0.1	26.1	1.42
		GVHP	0.22	≥ 1	0.2	18.0	1.42
		HVHP	0.45	≥ 2.6	0.5	8.7	1.42

[0] NOTE: Flow rates listed are based on measurements with clean water and air, and represent typical values. Values presented here do not establish specifications.
[1] Water flow rates were measured through 9.6 cm² of membrane, using 500 mL of water at 25 °C and 27.5 in. Hg of vacuum. Hydrophobic membranes were wet with solvents and then exchanged in water for testing.
[2] Air flow rates were measured on a 25 mm disc at 10 psi using a mass flow meter.
[3] Membranes were tested with water, except for Mitex™, Fluoropore™ and hydrophobic Durapore® membranes, which were tested with methanol.
[4] Corresponds to the first four letters of the catalogue number.

MF-Millipore™ Membrane Filters

Mixed cellulose esters



Biologically inert mixtures of cellulose acetate and cellulose nitrate have made MF-Millipore™ membrane filters one of the most widely used membranes in analytical and research applications.

MF-Millipore™ filters without Triton® surfactant contain minimum amounts of wetting agent and have a lower water extractable content than standard MF-Millipore™ filters.

Features & Benefits

- Versatile filter for biological and environmental monitoring applications
- Available in a range of pore sizes, colored black or white, with or without a gridded surface
- Compatible with ethylene oxide, gamma irradiation, and autoclave sterilization methods

Specifications

Color	White or black
Surface	Plain or gridded
Wettability	Hydrophilic
Sterilization	Ethylene oxide, autoclavable (121 °C at 1 bar)
Operating Temperature	55 °C maximum
Protein Binding	150 µg/cm²
Bacterial Endotoxins	8.0 EU/mL
Gravimetric Extractables	<1.0%

Detailed Specifications

Applications	Filter Code[1]	Color	Pore Size (µm)	Bubble Point[2] (psi)	Thickness (µm)	Water Flow Rate[3] (mL/min/cm²)	Typical Air Flow[4] (L/min/cm²)	Porosity (%)
Standard MF-Millipore™ Membranes								
Microdialysis of DNA and proteins	VSWP	White	0.025	306	105	-	>0.12	70
	VMWP	White	0.05	255	105	-	>0.26	72
	VCWP	White	0.1	205	105	-	>0.37	74
Sterilizing filtration, bioassays	GSWP	White	0.22	51.1	150	>20.1	2.7	75
Sterilizing filtration, air monitoring, particle monitoring, particle removal, bioassays	PHWP	White	0.3	35.7	150	>34.0	5.1	77
Clarification of aqueous solutions, particle removal and analysis, microbiology analysis	HAW*	White	0.45	30.6	150	>48.1	8.3	79
Fluorescent bacteriological assays, particle monitoring, bioassays	HAB**	Black	0.45	33.6	150	>69.4	-	79
Particle monitoring, particle removal, dairy microbiology, retention of yeasts, molds and algae	DAWP	White	0.65	17.0	150	>140	23.4	81
Air monitoring, particle monitoring, particle removal, bioassays	AAW**	White	0.8	14.0	150	>184	26.7	82
Fluorescent assays, particle monitoring, air monitoring	AAB**	Black	0.8	16.2	150	>195	-	82
Clarification of aqueous solutions	RAWP	White	1.2	11.2	150	>284	35.2	82
QC of fluid holding tanks, fluid monitoring, air monitoring, particle collection and analysis	SSWP	White	3	10.2	150	>347	49.3	83
QC of fluid holding tanks, fluid monitoring, particle collection and analysis	SMWP	White	5	8.0	135	>520	64.5	84
QC of fluid holding tanks, fluid monitoring, air monitoring, particle collection and analysis	SCWP	White	8	6.1	135	>625	68.9	84

*Available with plain (P) or gridded (G) surface.

[1]Corresponds to first 4 digits of catalogue number.

[2]Bubble point tested with water.

[3]Water Flow Rate measured with 47 mm disc and 500 mL of water at 25 °C and 27.5 inHg vacuum.

[4]Air flow values measured at 10 psi with a digital flow meter. Values represent typical performance and are not established specifications.

Ordering Information

Pore Size (µm)	Filter Diameter (mm)	Qty/Pk	Catalogue No.
Standard MF-Millipore™ Membranes, white, plain			
0.025	13	100	VSWP01300
	25	100	VSWP02500
	47	100	VSWP04700
	90	25	VSWP09025
	142	50	VSWP14250
0.05	13	100	VMWP01300
	25	100	VMWP02500
	47	100	VMWP04700
	90	25	VMWP09025
0.1	13	100	VCWP01300
	25	100	VCWP02500
	47	100	VCWP04700
	90	25	VCWP09025
	142	50	VCWP14250
0.22	13	100	GSWP01300
	25	100	GSWP02500
	37	100	GSWP03700[1]
	47	100	GSWP04700
	90	100	GSWP09000
	142	50	GSWP14250
0.3	25	100	PHWP02500
	47	100	PHWP04700
	90	25	PHWP09025
	142	50	PHWP14250
0.45	13	100	HAWP01300
	24	100	HAWP02400
	25	100	HAWP02500
	37	100	HAWP03700[1]
	47	100	HAWP04700
	47	50 pr	HAWP0470M[2]
	50	100	HAWP05000
	90	100	HAWP09000
	142	50	HAWP14250
0.65	13	100	DAWP01300
	25	100	DAWP02500
	47	100	DAWP04700
	90	25	DAWP09025
	142	50	DAWP14250
0.8	13	100	AAWP01300
	25	100	AAWP02500
	37	100	AAWP03700[1]
	37	100	AAWP037P0[3]
	37	50 pr	AAWP037PM[4]
	47	100	AAWP04700
	47	50 pr	AAWP0470M[2]
	90	100	AAWP09000
	142	50	AAWP14250
1.2	13	100	RAWP01300
	25	100	RAWP02500
	37	100	RAWP03700
	47	100	RAWP04700
	90	25	RAWP09025
	142	50	RAWP14250
3.0	13	100	SSWP01300
	25	100	SSWP02500
	47	100	SSWP04700
	90	25	SSWP09025
	142	50	SSWP14250
5.0	13	100	SMWP01300
	25	100	SMWP02500
	37	100	SMWP03700[1]
	47	100	SMWP04700
	90	25	SMWP09025
	142	50	SMWP14250
8.0	13	100	SCWP01300
	19 x 42	100	SCWP0190R
	25	100	SCWP02500
	47	100	SCWP04700
	90	25	SCWP09025
	142	50	SCWP14250
Standard MF-Millipore™ Membranes, white, gridded			
0.45	13	100	HAWG01300
	25	100	HAWG02500
	37	100	HAWG03700[1]
	47	100	HAWG04700

[1]Monitor refills with thin absorbent pads for aerosol monitoring.
[2]Matched weight filter pairs.
[3]Monitor refills with thick absorbent pads for liquid monitoring.
[4]Monitor refills (matched weight pairs) with thick absorbent pads for liquid monitoring.
[5]Cut from specifically selected and controlled roll stock to avoid contamination by fibers. For asbestos monitoring applications.

Ordering Information – Continued

Pore Size (µm)	Filter Diameter (mm)	Qty/Pk	Catalogue No.
0.8	13	100	AAWG01300
	25	100	AAWG0250C[5]
	37	100	AAWG03700[1]
	47	100	AAWG04700
1.2	25	100	RAWG02500
	25	100	RAWG0250C[5]
	47	100	RAWG04700
Standard MF-Millipore™ Membranes, black, plain			
0.45	25	100	HABP02500
	47	100	HABP04700
0.8	25	100	AABP02500
	47	100	AABP04700
Standard MF-Millipore™ Membranes, black, gridded			
0.45	13	100	HABG01300
	25	100	HABG02500
	47	100	HABG04700
0.8	13	100	AABG01300
	25	100	AABG02500
	37	100	AABG03700[1]
	47	100	AABG04700

[1]Monitor refills with thin absorbent pads for aerosol monitoring.
[2]Matched weight filter pairs.
[3]Monitor refills with thick absorbent pads for liquid monitoring.
[4]Monitor refills (matched weight pairs) with thick absorbent pads for liquid monitoring.
[5]Cut from specifically selected and controlled roll stock to avoid contamination by fibers. For asbestos monitoring applications.

Detailed Specifications

Applications	Filter Code[1]	Color	Pore Size (µm)	Bubble Point[2] (psi)	Thickness (µm)	Water Flow Rate[3] (mL/min/cm²)	Typical Air Flow[4] (L/min/cm²)	Porosity (%)
MF-Millipore™ Membranes without Triton® surfactant								
For biological solutions, cell contact, or very small volumes, requiring surfactant-free surfaces	GSTF	White	0.22	51.1	150	>20	2.7	77
	HATF	White	0.45	30.6	150	>48	8.3	79
	RATF	White	1.2	11.2	150	>284	35.2	82

[1]Corresponds to first 4 digits of catalogue number.
[2]Bubble point tested with water.
[3]Water Flow Rate measured with 47 mm disc and 500 mL of water at 25 °C and 27.5 inHg vacuum.
[4]Air flow measured at 10 psi. Values represent typical performance and are not established specifications.

Ordering Information

Pore Size (µm)	Filter Diameter (mm)	Qty/Pk	Catalogue No.
MF-Millipore™ Membranes without Triton® surfactant, white, plain			
0.22	13	100	GSTF01300
	25	100	GSTF02500
	47	100	GSTF04700
	90	100	GSTF09000
	142	50	GSTF14250
0.45	13	100	HATF01300
	25	100	HATF02500
	47	100	HATF04700
	90	25	HATF09025
	142	50	HATF14250
1.2	47	100	RATF04700
	142	50	RATF14250

Accessory

Description	Qty/Pk	Catalogue No.
Filter Forceps, blunt end, stainless steel	3	XX6200006P

For more information visit: www.merckmillipore/filterdiscs

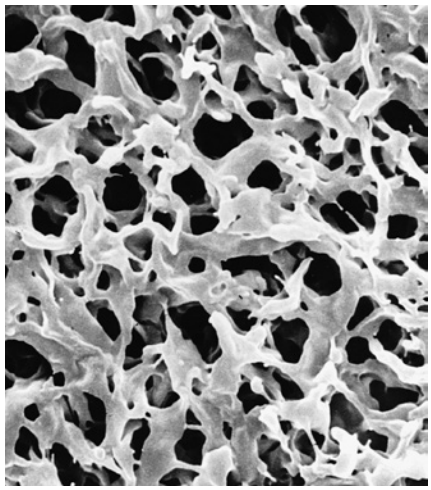
Durapore® Membrane Filters

Polyvinylidene fluoride (PVDF)

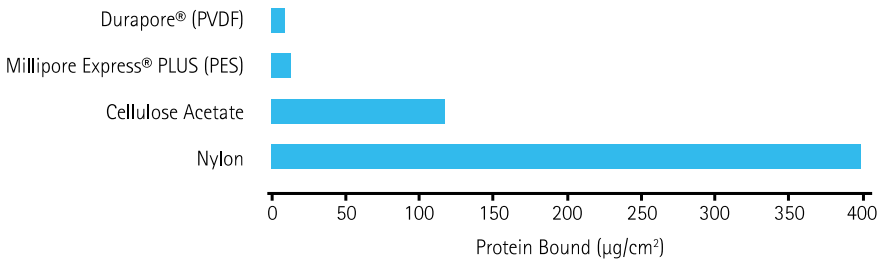
Durapore® membranes provide high flow rates and throughput, low extractables and broad chemical compatibility. Hydrophlic Durapore® membrane binds far less protein than nylon, nitrocellulose, or PTFE membranes.

Features & Benefits

- Available in several pore sizes (both hydrophilic and hydrophobic varieties) to suit your application needs
- Durapore® membrane filters have very low protein binding to minimize interaction with your sample and maximize recovery



Product Performance



Lowest protein binding with Durapore® PVDF membrane. Membrane disks with a 0.22 µm pore size were exposed to a 1 mg/mL solution of ^{125}I-labeled IgG. The chart shows protein binding after incubation (normalized to membrane surface area).

Specifications

Color	White
Surface	Plain
Wettability	Hydrophilic or hydrophobic
Sterilization	Ethylene oxide, gamma irradiation, autoclavable (121 °C at 1 bar)
Operating Temperature	85 °C maximum
Thickness	125 µm
Bacterial Endotoxins	0.5 EU/mL
Gravimetric Extractables	<0.5%

Detailed Specifications

Applications	Filter Code[1]	Pore Size (µm)	Wettability	Bubble Point (psi)	Water Flow Rate[2] (mL/min/cm²)	Typical Air Flow[3] (L/min/cm²)	Protein Binding (µg/cm²)
Mycoplasma reduction in biological solutions	VVLP	0.1	Hydrophilic	≥75 psi, air with water	>4	-	4
Sterilizing filtration of biological solutions	GVWP	0.22	Hydrophilic	≥50 psi, air with water	>12	-	4
Clarifying filtration of biological solutions	HVLP	0.45	Hydrophilic	≥22 psi, air with water	>34	-	4
Clarifying filtration of biological solutions	DVPP	0.65	Hydrophilic	≥15 psi, air with water	>78	-	4
Clarifying filtration of biological solutions, particle monitoring	SVLP	5.0	Hydrophilic	≥3 psi, air with water	>208	-	4
Air sterilization, gas sterilization	VVHP	0.1	Hydrophobic	≥26 psi, air with methanol	-	0.9	150
Air sterilization, gas sterilization, solvent filtration	GVHP	0.22	Hydrophobic	≥18 psi, air with methanol	-	1.7	150
Air clarification, gas filtration, solvent filtration	HVHP	0.45	Hydrophobic	≥9 psi, air with methanol	-	4.9	150

[1]Corresponds to first 4 digits of catalogue number.

[2]Water Flow Rate measured with 500 mL of water at 25 °C and 27.5 inHg vacuum through 47 mm disc.

[3]Air flow rate measured at 10 psi. Values represent typical performance and are not established specifications.

Ordering Information

Pore Size (µm)	Filter Diameter (mm)	Qty/Pk	Catalogue No.
Hydrophilic Durapore® Membrane Filters			
0.1	13	100	VVLP01300
0.1	25	100	VVLP02500
0.1	47	100	VVLP04700
0.1	90	50	VVLP09050
0.1	142	50	VVLP14250
0.22	13	100	GVWP01300
0.22	25	100	GVWP02500
0.22	47	100	GVWP04700
0.22	90	50	GVWP09050
0.22	100	50	GVWP10050
0.22	142	50	GVWP14250
0.45	13	100	HVLP01300
0.45	25	100	HVLP02500
0.45	47	100	HVLP04700
0.45	90	50	HVLP09050
0.45	304 mm x 3 m	1	HVLP00010
0.65	13	100	DVPP01300
0.65	25	100	DVPP02500
0.65	47	100	DVPP04700
0.65	82	50	DVPP08250
0.65	90	50	DVPP09050
0.65	142	50	DVPP14250
0.65	293	25	DVPP29325
5.0	13	100	SVLP01300
5.0	13	100	SVLP01300
5.0	25	100	SVLP02500
5.0	47	100	SVLP04700
5.0	75	50	SVLP07550
5.0	47	100	SVWG04700
5.0	90	50	SVLP09050
Hydrophobic Durapore® Membrane Filters			
0.1	47	100	VVHP04700
0.22	13	100	GVHP01300
0.22	25	100	GVHP02500
0.22	47	100	GVHP04700
0.22	90	50	GVHP09050
0.22	142	50	GVHP14250
0.22	304 mm x 3 m	1	GVHP00010
0.45	13	100	HVHP01300
0.45	25	100	HVHP02500
0.45	47	100	HVHP04700
0.45	90	50	HVHP09050
0.45	142	50	HVHP14250
Accessory			
Filter Forceps, blunt end, stainless steel		3	XX6200006P

*The membrane disc (cat. no. SVWG04700) has a gridded surface.

For more information visit: www.merckmillipore/filterdiscs

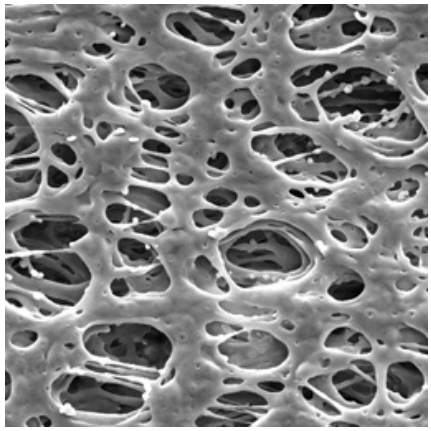
Millipore Express® PLUS Membrane Filters

Polyethersulfone (PES)

The Millipore Express® PLUS membrane provides ultrafast filtration of tissue culture media, additives, buffers and other aqueous solutions. This high throughput, low protein-binding membrane is also used in many of our ready-to-use sterile filtration devices.

Features & Benefits

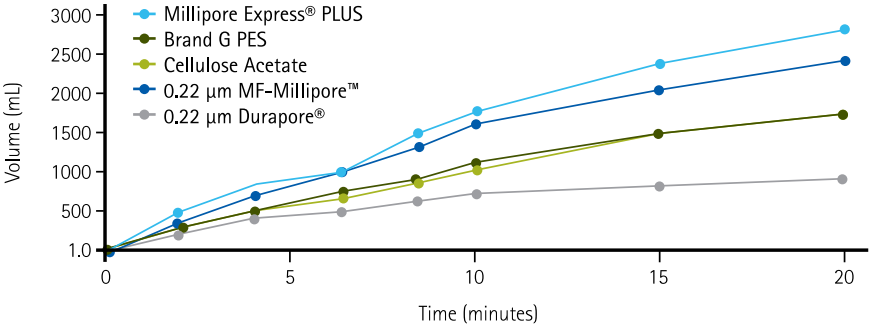
- Ultra fast filtration and high throughput shorten process time
- Can be sterilized by autoclave, ethylene oxide, or gamma irradiation for sterile filtration applications



Applications

Sterile Filtration, Buffer Filtration, Tissue Culture Media Filtration

Product Performance



Proven fast flow rate. 47 mm membrane disks with a 0.22 µm pore size were challenged with DMEM with 10% FBS, and the time required to measure each volume was recorded.

Specifications

Color	white
Surface	plain
Bacterial Endotoxins	0.5 EU/mL
Gravimetric Extractables	<0.5%
Sterilization	Ethylene oxide, gamma irradiation, autoclave (121 °C at 1 bar)

Detailed Specifications

Filter Code[1]	Pore Size (µm)	Bubble Point[2] (psi)	Thickness (µm)	Water Flow Rate[3] (mL/min/cm²)
GPWP	0.22	20	170	>27
HPWP	0.45	10	140	>44

[1]Corresponds to first 4 digits of catalogue number.
[2]Bubble point measured with isopropyl alcohol.
[3]Water flow rate measured with 500 mL of water at 25 °C and 27.5 in. Hg vacuum through 47 mm disc.

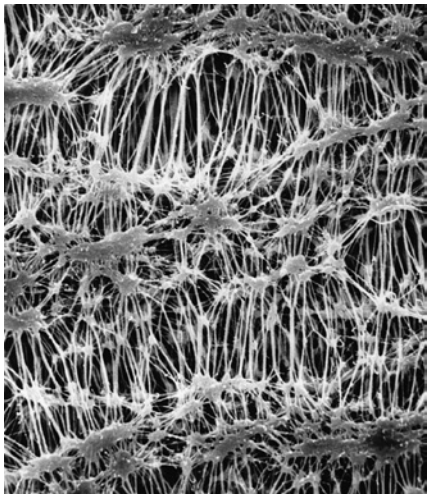
Ordering Information

Description	Pore Size (µm)	Filter Diameter (mm)	Qty/Pk	Catalogue No.
Millipore Express® PLUS Membrane	0.22	13	100	GPWP01300
		25	100	GPWP02500
		47	100	GPWP04700
		90	50	GPWP09050
		142	50	GPWP14250
	0.45	13	100	HPWP01300
		25	100	HPWP02500
		47	100	HPWP04700
		90	50	HPWP09050
		142	50	HPWP14250
Accessory				
Filter Forceps, blunt end, stainless steel			3	XX6200006P

For more information visit: www.merckmillipore/filterdiscs

Fluoropore™ and Omnipore™ PTFE Membrane Filters

PTFE with and without backing material



Features & Benefits

- Biologically and chemically inert
- High porosity yields high flow rates
- Hydrophobic and hydrophilic PTFE varieties available for filtration of aqueous and organic-based samples

Applications

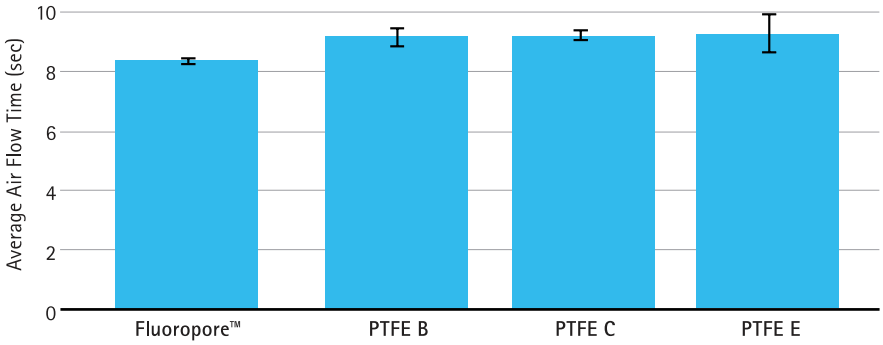
Fluoropore™ Membrane: Clarifying Acids, Bases and Solvents; Air Monitoring; Filtering and Venting Gases; UV Spectroscopy

Omnipore™ Membrane: Filtration of Aqueous Solutions, Clarifying Acids and Alkaline Solution

Fluoropore™ Membrane is a hydrophobic, polytetrafluoroethylene (PTFE) polymer membrane bonded to a high density polyethylene support. (Catalogue numbers containing ""FHUP"" have no backing.) Fluoropore™ Membranes provide broad chemical compatibility, high flow rates and consistency.

Omnipore™ Membrane is hydrophilic PTFE compatible with virually all solvents, acids, and alkaline solutions.

Product Performance



Faster flow and less variability than competitors for consistently strong performance. Air flow through PTFE membranes from various suppliers was measured using a Gurley 4110 Densometer with 0.1 in^2 aperture size and 100 cc air setting and a 20 oz cylinder.

Specifications

Sterilization	Ethylene oxide or autoclave (121 °C at 1 bar)
Bacterial Endotoxins	0.5 EU/mL
Gravimetric Extractables	<0.5%

Detailed Specifications

Applications	Filter Code[1]	Pore Size (µm)	Bubble Point[2] (psi)	Thickness (µm)	Liquid Flow Rate[3] (mL/min/cm^2)	Air Flow Rate[4] (L/min/cm^2)	Oper. Temp. (°C)	Porosity (%)
Fluoropore™ Membranes (hydrophobic)								
Clarifying acids, bases, and solvents, air monitoring, filtering or venting gases, UV spectroscopy	FGLP	0.2	14.8	150	24	5	130	85
	FHLP	0.45	9.2	150	60	9	130	85
	FALP	1.0	7.0	150	110	16	130	85
	FSLW	3.0	1.0	150	286	20	130	85
	FHUP	0.45	6.2	50	75	9	130	NA
Omnipore™ Membranes (hydrophilic)								
Clarifying acids, alkaline solutions, and virtually all solvents	JVWP	0.1	23.6	30	>10			
	JGWP	0.2	13.6	65	>28			
	JHWP	0.45	7.9	65	>74			
	JAWP	1.0	3.6	85	>156			
	JMWP	5	2.1	85	>391			
	JCWP	10	0.7	85	>446			

[1]Corresponds to first 4 digits of catalogue number.
[2]Bubble point determined with methanol, except FHUP which was tested with isopropyl alcohol (IPA). Omnipore™ membrane tested with IPA.
[3]Fluoropore™ membrane tested with methanol at 27.5 in. Hg. (average values). For Omnipore™ membrane, 100 mL water, 20 °C, 47 mm disc, 8.97" in. Hg. vacuum
[4]Air flow rates for Fluoropore™ membrane are tested at 10 psi.

Ordering Information

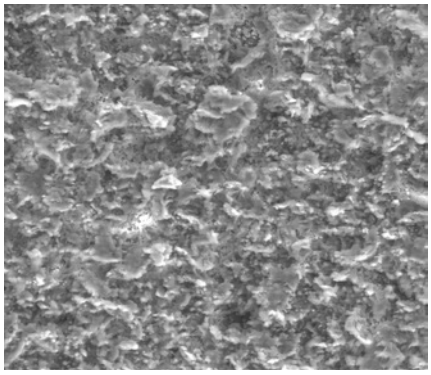
Pore Size (µm)	Filter Diameter (mm)	Qty/Pk	Catalogue No.
Fluoropore™ (PTFE) Membrane Filters			
0.22	13	100	FGLP01300
	25	100	FGLP02500
	47	100	FGLP04700
	90	50	FGLP09050
	142	50	FGLP14250
0.45	13	100	FHLP01300
	25	100	FHLP02500
	37	100	FHLP03700
	47	100	FHLP04700
	90	50	FHLP09050
	142	50	FHLP14250
1.0	13	100	FALP01300
	25	100	FALP02500
	37	100	FALP03700
	47	100	FALP04700
	90	50	FALP09050
	142	50	FALP14250
3.0	25	100	FSLW02500
	37	100	FSLW03700
	47	100	FSLW04700
	90	25	FSLW09025
	142	10	FSLW14200
Unlaminated Fluoropore™ (PTFE) Membrane Filter			
0.45	47	100	FHUP04700

Pore Size (µm)	Filter Diameter (mm)	Qty/Pk	Catalogue No.
Omnipore™ (hydrophilic PTFE) Membrane Filters			
0.1	13	100	JVWP01300
	25	100	JVWP02500
	47	100	JVWP04700
	90	25	JVWP09025
	142	25	JVWP14225
0.2	13	100	JGWP01300
	25	100	JGWP02500
	47	100	JGWP04700
	90	25	JGWP09025
	142	25	JGWP14225
0.45	13	100	JHWP01300
	25	100	JHWP02500
	47	100	JHWP04700
	90	25	JHWP09025
	142	25	JHWP14225
1.0	13	100	JAWP01300
	25	100	JAWP02500
	47	100	JAWP04700
	90	25	JAWP09025
	142	25	JAWP14225
5.0	13	100	JMWP01300
	25	100	JMWP02500
	47	100	JMWP04700
	90	25	JMWP09025
	142	25	JMWP14225
10.0	13	100	JCWP01300
	25	100	JCWP02500
	47	100	JCWP04700
	90	25	JCWP09025
	142	25	JCWP14225

For more information visit: www.merckmillipore/filterdiscs

Mitex™ PTFE Membrane Filters

Pure PTFE



Mitex™ PTFE Membrane is unaffected by almost all liquids, including organic solvents, concentrated acids and bases, propellants, and cryogenic fluids. Mitex™ membrane is unbacked, yet is easy to handle, combining the convenience of a backed membrane with the versatility of a pure PTFE membrane. Mitex™ membrane is hydrophobic.

Features & Benefits

- Broad chemical compatibility
- Biologically and chemically inert
- Stable at temperatures in excess of 260 °C (500 °F) and below -100 °C (-148 °F)

Applications

Clarifying Acids, Bases, and Cryogenic Fluids; Clarifying Propellants; Analyzing Hydraulic Fluids; Isolating RNA

Specifications

Sterilization	Ethylene oxide or autoclave (121 °C at 1 bar)
Bacterial Endotoxins	0.5 EU/mL
Gravimetric Extractables	<0.5%

Detailed Specifications

Filter Code[1]	Pore Size (µm)	Bubble Point[2] (psi)	Thickness (µm)	Water Flow Rate[3] (mL/min/cm²)	Air Flow Rate[4] (mL/min/cm²)	Oper. Temp. (°C)
LSWP	5	0.9	170	>47	>117	260
LCWP	10	0.7	130	>125	>167	260

[1]Corresponds to first 4 digits of catalogue number.
[2]Bubble point measured with ethanol at 23 °C.
[3]Water Flow Rate measured with 500 mL of water at 25 °C and 27.5 in. Hg vacuum through 47 mm disc.
[4]Air flow rates measured on 47 mm disc at 10 mbar with digital flow meter.

Ordering Information

Description	Pore Size (µm)	Filter Diameter (mm)	Qty/Pk	Catalogue No.
Mitex™ PTFE Membrane Filters, plain	5.0	13	100	LSWP01300
		25	100	LSWP02500
		37	100	LSWP03700
		47	100	LSWP04700
		90	25	LSWP09025
		142	50	LSWP14250
	10.0	13	100	LCWP01300
		25	100	LCWP02500
		47	100	LCWP04700
		90	25	LCWP09025
		142	50	LCWP14250
Mitex™ PTFE Membrane Filters, gridded	5.0	25	100	LSWG02500
		47	100	LSWG04700
	10.0	25	100	LCWG02500
		47	100	LCWG04700

For more information visit: www.merckmillipore/filterdiscs

LCR PTFE Membrane Filters

Low extractables PTFE for clearer results

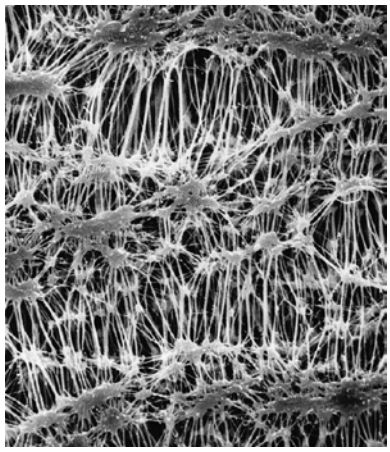
LCR membrane is an unsupported, hydrophilic PTFE membrane compatible with all commonly used HPLC solvents. The membrane undergoes a special treatment process to remove any residual extractabes, ensuring that it will not add anything to your HPLC solvents, providing clearer analysis results.

Features & Benefits

- Hydrophilic membrane can be used to filter aqueous fluids without prior wetting
- Ultraclean membrane will not add extractables to your samples or solvents

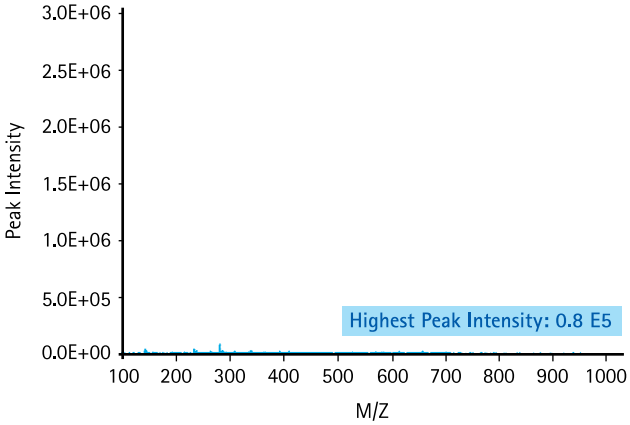
Applications

HPLC Mobile Phase Filtration; Clarifying Acids, Bases and Dilute Protein Solutions; Isolating RNA

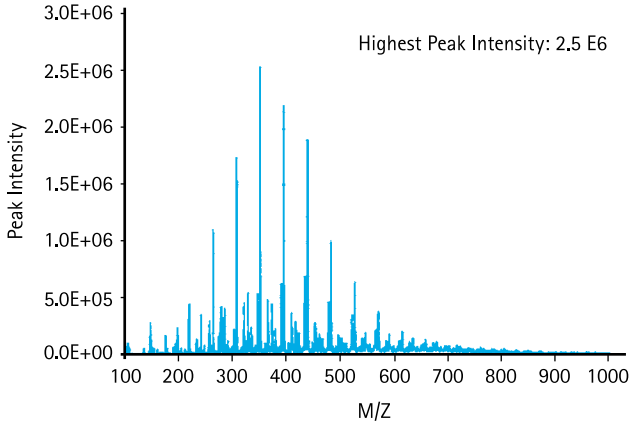


Product Performance

A. Millex® Filter Unit, PTFE



B. Polypropylene



Millex® filters feature low extractables. Mass spectrometry detects few extractable impurities from Millex® syringe filters containing 0.45 µm pore hydrophilic PTFE membrane (A). In contrast, a syringe filter containing 0.45 µm pore polypropylene membrane from another vendor (B) shows significant leaching of impurities.

Specifications

Filter Code[1]	Pore Size (µm)	Bubble Point[2] (psi)	Thickness (µm)	Water Flow Rate[3] (mL/min/cm²)	Typical Air Flow Rate[4] (L/min/cm²)	Oper. Temp. (°C)	Porosity (%)
FHLC	0.45	9.2	140	28.4	1.1	130	80

[1]Corresponds to first 4 digits of catalog number.
[2]Tested in methanol.
[3]Water Flow Rate measured with 500 mL of water at 25 °C and 27.5 in. Hg vacuum through 47 mm disc.
[4]Measured at 10 psi.

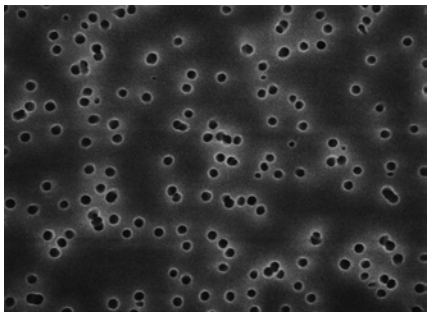
Ordering Information

Description	Pore Size (µm)	Filter Diameter (mm)	Qty/Pk	Catalogue No.
LCR PTFE Membrane Filters	0.45	13	100	FHLC01300
		25	100	FHLC02500
		47	100	FHLC04700

For more information visit: www.merckmillipore/filterdiscs

Isopore™ Membrane Filters

Polycarbonate membrane for microscopy and visual analysis



The Isopore™ membrane is a polycarbonate, track-etched screen filter recommended for all analyses in which the sample is viewed on the surface of the membrane. Isopore™ membrane offers distinct advantages for the analysis of airborne contaminants and other particles using optical or electron microscopy. The Isopore™ membrane is composed of polycarbonate film, which has a smooth, glass-like surface for clearer sample observation. The unique manufacturing process of the membrane ensures a precise pore diameter and a consistent pore size for accurate separation of samples by size. Matched-weight filters are not usually required because of low, constant tar and ash weights.

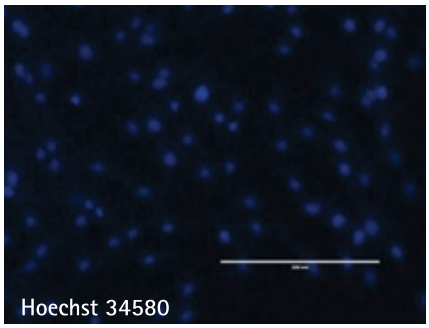
Features & Benefits

- Membrane structure retains particles on the surface, simplifying counting and analysis
- Isopore™ membranes do not stain, resulting in low background interference
- Non-hygroscopic, allowing for rapid drying and reduced sample analysis time
- Translucent material does not require clearing for transmitted light microscopy; also available in brown variety

Applications

Air Monitoring, Epifluorescent Microscopy, Chemotaxis Assays

Product Performance



Low background enables simple, accurate cell counting. NIH 3T3 cells were seeded at 25,000 cells per well of a Millicell® 24-well culture plate with 0.4 µm Isopore™ polycarbonate membrane (Cat. No. PSHT010R5). After two days, cells were fixed with 4% paraformaldehyde, nuclei were stained with Hoechst 34580 and cells counted via fluorescence microscopy. Magnification = 10X.

Specifications

Color	White or brown
Surface	Plain
Wettability	Hydrophilic
Thickness	7-27 µm
Operating Temperature	140 °C maximum
Gravimetric Extractables	<1.0%
Sterilization	Ethylene oxide, gamma irradiation, or autoclave (121 °C at 1 bar)

Detailed Specifications

Applications	Filter Code[1]	Color	Pore Size (µm)	Bubble Point[2] (psi)	Water Flow Rate[3] (mL/min/cm²)	Air Flow Rate[4] (L/min/cm²)
Chemotaxis, bioassays, cytology, air monitoring	VCTP	White	0.1	102	0.5	1.3
Chemotaxis, bioassays, cytology, air monitoring, SEM analysis, sterility testing	GTTP	White	0.2	51	6	3.5
Epifluorescent microscopy, particle monitoring, air monitoring	GTBP	Brown	0.2	51	6	-
Adsorbable organic halides (AOX), air monitoring, particle monitoring	HTTP	White	0.4	22	50	7
Epifluorescent microscopy, particle monitoring, air monitoring	HTBP	Brown	0.4	29	50	-
Reflective light microscopy, SEM analysis, gravimetric analysis, air monitoring	DTTP	White	0.6	8.7	25	8
Reflective light microscopy, SEM analysis, gravimetric analysis, air monitoring, asbestos monitoring	ATTP	White	0.8	8.7	40	14
Chemotaxis, bioassays, cytology, air monitoring	RTTP	White	1.2	8.7	110	19
	TTTP	White	2	4.4	90	23
	TSTP	White	3	0.7	180	49
Parasitology, chemotaxis, bioassays, cytology, air monitoring	TMTP	White	5	-	250	54
Chemotaxis, bioassays, cytology, air monitoring	TETP	White	8	-	250	55
	TCTP	White	10	-	250	72

[1]Corresponds to first 4 digits of catalogue number.

[2]Bubble point tested in water at 20 °C.

[3]Water flow rate tested at 10 psi.

[4]Air flow measured at 10 psi. Values represent typical performance and are not established specifications.

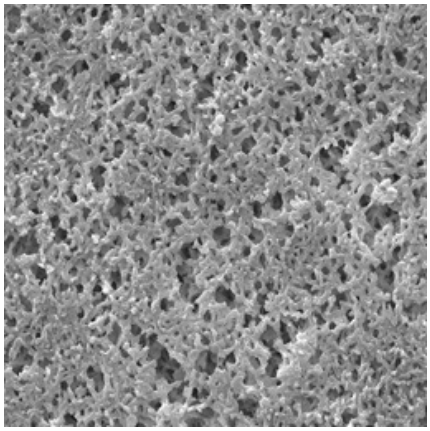
Ordering Information

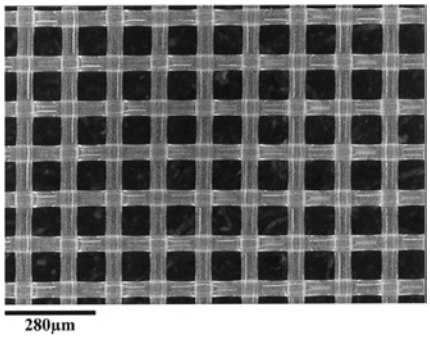
Pore Size (µm)	Filter Diameter (mm)	Qty/Pk	Catalogue No.
White Membrane Filters			
0.1	13	100	VCTP01300
	25	100	VCTP02500
	47	100	VCTP04700
	142	50	VCTP14250
0.2	13	100	GTTP01300
	25	100	GTTP02500
	37	100	GTTP03700
	47	100	GTTP04700
	90	30	GTTP09030
	142	50	GTTP14250
0.4	13	100	HTTP01300
	25	100	HTTP02500
	37	100	HTTP03700
	47	100	HTTP04700
	90	30	HTTP09030
0.6	13	100	DTTP01300
	25	100	DTTP02500
	47	100	DTTP04700
0.8	13	100	ATTP01300
	25	100	ATTP02500
	37	100	ATTP03700
	47	100	ATTP04700
	142	50	ATTP14250
1.2	13	100	RTTP01300
	25	100	RTTP02500
	47	100	RTTP04700
	142	50	RTTP14250
2.0	25	100	TTTP02500
	47	100	TTTP04700
3.0	13	100	TSTP01300
	25	100	TSTP02500
	47	100	TSTP04700
	142	50	TSTP14250
5.0	13	100	TMTP01300
	25	100	TMTP02500
	47	100	TMTP04700
	90	30	TMTP09030
	142	50	TMTP14250
8.0	13	100	TETP01300
	25	100	TETP02500
	47	100	TETP04700
	142	50	TETP14250
10.0	13	100	TCTP01300
	25	100	TCTP02500
	47	100	TCTP04700
	142	50	TCTP14250
Brown Membrane Filters			
0.2	13	100	GTBP01300
	25	100	GTBP02500
	47	100	GTBP04700
0.4	13	100	HTBP01300
	25	100	HTBP02500
	47	100	HTBP04700

For more information visit: www.merckmillipore/filterdiscs

Nylon Membrane and Net Filters

Broad chemical compatibility





Nylon filters are compatible with a broad range of solvents. Two types are available: membrane filters with pore sizes ranging from 0.20 to 1.2 µm and woven net filters with mesh openings ranging from 10 to 180 µm.

Features & Benefits

- Wide range of pore sizes available
- Resistant to aggressive solvents

Applications

Particle Removal and Clarification; Solvent Filtration; Particle Analysis; Paint Monitoring

Specifications

Applications	Filter Code*	Pore Size (µm)	Bubble Point (psi)	Thickness (µm)	Water Flow Rate** (mL/min/cm²)	Open Area (%)
Nylon Membrane Filters						
Sterilizing filtration, bioassays, solvent filtration	GNWP	0.20	42	170	8.0	–
Clarification of solutions, particle removal and analysis	HNWP	0.45	30	170	14.6	–
Air monitoring, particle removal and analysis	ANWP	0.8	8	170	18.6	–
Clarification of aqueous and organic solutions	RNWP	1.2	6	170	21.2	–
Nylon Net Filters						
Collection of algae and cells, particle analysis, large particulate filtration, toxicology and drug screening on *C. Elegans* and zebrafish, background filter for automated particle imaging systems, prefiltration of solvents, paint monitoring	NY10	10	NA	45	–	4
	NY11	11	NA	65	–	6
	NY20	20	NA	55	–	14
	NY30	30	NA	65	–	17
	NY41	40	NA	50	–	31
	NY60	60	NA	50	–	41
	NY80	80	NA	75	–	41
	NY1H	100	NA	80	–	44
	NY2H	120	NA	80	–	49
	NY4H	140	NA	120	–	43
	NY6H	160	NA	100	–	53
	NY8H	180	NA	135	–	47

*Corresponds to first 4 digits of catalogue number

**Represent typical values

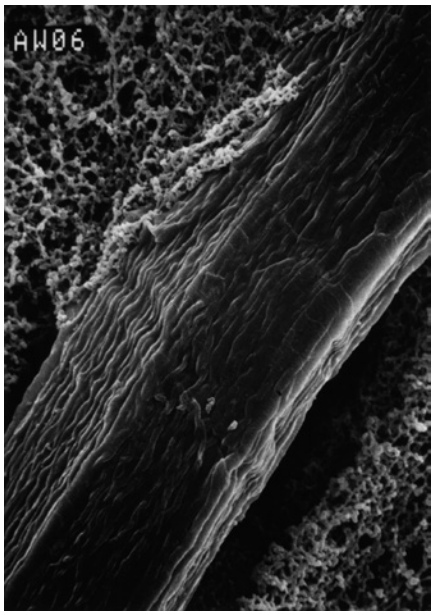
Ordering Information

Pore Size (µm)	Filter Diameter (mm)	Qty/Pk	Catalogue No.
Nylon Membrane Filters			
0.2	25	100	GNWP02500
	47	100	GNWP04700
0.45	25	100	HNWP02500
	47	100	HNWP04700
0.8	25	100	ANWP02500
	47	100	ANWP04700
1.2	25	100	RNWP02500
	47	100	RNWP04700
Nylon Net Filters			
10.0	25	100	NY1002500
	47	100	NY1004700
	90	50	NY1009000
11.0	25	100	NY1102500
	47	100	NY1104700
	90	50	NY1109000
	30 cm x 3 m	1	NY1100010
20.0	25	100	NY2002500
	47	100	NY2004700
	90	50	NY2009000
	30 cm x 3 m	1	NY2000010
30.0	25	100	NY3002500
	47	100	NY3004700
	90	50	NY3009000
41.0	25	100	NY4102500
	47	100	NY4104700
	90	50	NY4109000
	30 cm x 3 m	1	NY4100010
60.0	25	100	NY6002500
	47	100	NY6004700
	90	50	NY6009000
	30 cm x 3 m	1	NY6000010
80.0	25	100	NY8002500
	47	100	NY8004700
	90	50	NY8009000
100.0	25	100	NY1H02500
	47	100	NY1H04700
	90	50	NY1H09000
	30 cm x 3 m	1	NY1H00010
120.0	25	100	NY2H02500
	47	100	NY2H04700
	90	50	NY2H09000
140.0	25	100	NY4H02500
	47	100	NY4H04700
	90	50	NY4H09000
160.0	25	100	NY6H02500
	47	100	NY6H04700
	90	50	NY6H09000
	30 cm x 3 m	1	NY6H00010
180.0	25	100	NY8H02500
	47	100	NY8H04700
	90	50	NY8H09000
Accessory			
Filter Forceps, blunt end, stainless steel		3	XX6200006P

For more information visit: www.merckmillipore/filterdiscs

Reinforced Prefilter Membrane

Mixed cellulose ester with polyester support



Reinforced prefilter membranes can be used to remove contaminants from a variety of liquids and gases. The filters have a high dirt-holding capacity and a low pressure drop, which makes them ideally suited for reducing contaminant levels in advance of sterilizing-grade filters. Reinforced prefilter membranes are made from non-shedding materials. The filters retain contaminants on the surface of the cellulose membrane.

Features & Benefits

- Prefilter with high dirt-loading capacity for greater throughput
- Non-shedding substrate will not unload fibers downstream

Applications

Prefiltration Ahead of Sterilizing-Grade Filters

Specifications

Thickness	200 µm
Porosity	70%
Wettability	Hydrophilic
Operating Temperature	70 °C maximum
Sterilization	Ethylene oxide or autoclave (121 °C at 1 bar)
Bacterial Endotoxins	<20 EU/mL
Gravimetric Extractables	<0.5%

Detailed Specifications

Applications	Filter Code*	Retention Rating (µm)	Water Flow Rate (mL/min/cm²)	Protein Binding (µg/cm²)
Prefiltration before 0.22 µm membrane filtration	RW03	0.2	50	120
Prefiltration before 0.45 µm membrane filtration	RW06	0.5	150	80
Prefiltration before 1.2 µm membrane filtration	RW19	1.2	260	20

*Corresponds to first 4 digits of catalogue number

Ordering Information

Description	Filter Diameter (mm)	Qty/Pk	Catalogue No.
Reinforced Membrane Type RW03	47	100	RW0304700
	90	100	RW0309000
Reinforced Membrane Type RW06	47	100	RW0604700
	90	100	RW0609000
	142	50	RW0614250
Reinforced Membrane Type RW19	47	100	RW1904700
	142	50	RW1914250
Accessory			
Filter Forceps, blunt end, stainless steel		3	XX6200006P

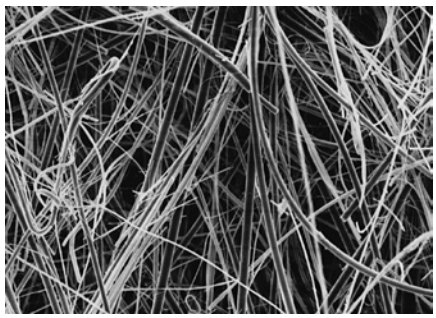
For more information visit: www.merckmillipore/filterdiscs

Glass & Quartz Fiber Filters

For contamination analysis

Glass fiber disc filters are available in a wide range of flow rates and throughput capacities. Glass fiber filters are available with or without binder resins and can be sterilized by ethylene oxide, gamma irradiation or autoclaving.

Our pure quartz fiber filters have a composition that prevents the filters from reacting with acidic gases. This makes quartz filters well-suited for measuring heavy metal concentrations and small amounts of particles (such as the US EPA PM 10 ambient air monitoring method).



Specifications

Filter Code[1]	Retention Rating (µm)	Thickness (µm)	Water Flow Rate (mL/min/cm²)	Air Resistance[2] (mm of H_2O)	Air Flow[3] (L/min/cm²)	DOP Penetration[4]	Protein Binding (µg/cm²)	Weight (g/m²)	Max. Temp. (°C)
Glass Fiber Filters with Binder Resin									
AP15	0.2 - 0.6	790	1.6	210	10.6	0.10	100	50	–
AP20	0.8 - 8.0	380	1.3	48	46.4	0.08	60	59	–
AP25	0.8 - 8.0	1200	5.8	35	63.6	0.03	110	140	–
Glass Fiber Filters without Binder Resin									
APFA	1.6	230	5.0	33	67.5	0.002	–	55	500
APFB	1.0	700	2.2	95	23.4	0.002	–	140	500
APFC	1.2	240	1.2	54	41.2	0.002	–	52	500
APFD	2.7	470	2.7	16	139	0.1	–	120	500
APFF	0.7	380	1.4	120	18.6	0.002	–	75	500
AP40	–	475	6.0	50	44.5	0.002	–	65	550
Quartz Fiber Filters									
AQFA	–	430	1.6	50	44.5	0.002	–	85	950

[1]Corresponds to first 4 digits of catalogue number
[2]Measured at 10.5 fpm or 5.3 cm/s
[3]Meaured at 10 psi
[4]Dioctyl phthalate percentage at 10.5 fpm

Ordering Information

Filter Type	Filter Diameter (mm)	Qty/Pk	Catalogue No.
Glass Fiber Filters with Binder Resin			
AP15	25	100	AP1502500
	37	100	AP1503700
	42	100	AP1504200
	47	100	AP1504700
	75	100	AP1507500
	90	100	AP1509000
	124	50	AP1512450
	142	50	AP1514250
AP20	13	100	AP2001300
	25	100	AP2002500
	42	100	AP2004200
	47	100	AP2004700
	55	100	AP2005500
	75	100	AP2007500
	90	100	AP2009000
	124	50	AP2012450
	142	50	AP2014250

Filter Type	Filter Diameter (mm)	Qty/Pk	Catalogue No.
AP25	10	100	AP2501000
	13	100	AP2501300
	22	100	AP2502200
	25	100	AP2502500
	42	100	AP2504200
	47	100	AP2504700
	90	100	AP2509000
	124	50	AP2512450
	142	50	AP2514250
Glass Fiber Filters without Binder Resin			
APFA	47	100	APFA04700
APFB	25	100	APFB02500
	37	100	APFB03700
	47	100	APFB04700
APFC	25	100	APFC02500
	47	100	APFC04700
	90	50	APFC09050

Ordering Information – Continued

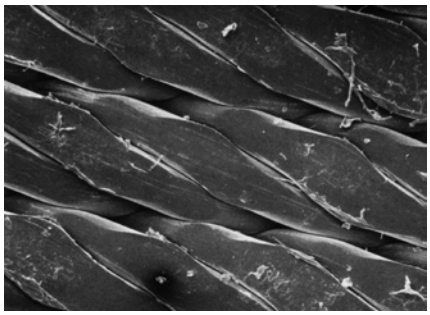
Filter Type	Filter Diameter (mm)	Qty/Pk	Catalogue No.
APFD	25	100	APFD02500
	47	100	APFD04700
	90	50	APFD09050
APFF	25	100	APFF02500
	47	100	APFF04700
	90	50	APFF09050
	142	50	APFF14250
AP40	10	100	AP4001000
	24	500	AP4002405
	25	100	AP4002500
	37	500	AP4003705
	70	100	AP4007000
	90	100	AP4009000
	142	50	AP4014250

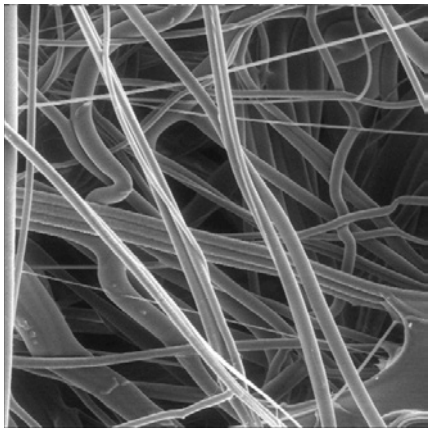
Filter Type	Filter Diameter (mm)	Qty/Pk	Catalogue No.
Quartz Fiber Filters			
AQFA	37	100	AQFA03700
	47	100	AQFA04700
	90	50	AQFA09050
	8 in. x 10 in.	50	AQFA8X105
Accessory			
Filter Forceps, blunt end, stainless steel		3	XX6200006P

For more information visit: www.merckmillipore/filterdiscs

Polypropylene Prefilters and Membranes

Broad thermal compatibility





Polypropylene filters are constructed of 100% virgin polypropylene media. They are designed for general clarification and prefiltration of solvents, deionized water and bioburden reduction. They also provide broad thermal compatibility. The prefilters provide high particle retention, high dirt-holding capacity and low pressure drop. They are designed for filtration of organic solvents, but they can also be used, once properly wetted with alcohol, for the filtration of aqueous solutions.

Features & Benefits

- Compatible with aggressive solvents
- Prefilters have high dirt-holding capacity

Applications

General Prefiltration and Clarification, Suitable for Organic Solvents

Specifications

Applications	Filter Code*	Pore Size (µm)	Thickness (µm)	Max. Temp. (°C)
Polypropylene Prefilters				
Clarification of aqueous solutions, prefiltration upstream of membrane filters with pore sizes of 0.2 – 0.6 µm	AN06	0.6	140	90
Clarification of aqueous solutions, prefiltration upstream of membrane filters with pore sizes of 0.5 – 2.0 µm	AN12	1.2	140	90
Clarification of aqueous solutions, prefiltration upstream of membrane filters with pore sizes of 0.8 – 8.0 µm	AN25	2.5	140	90
Collection of cells and precipitates	AN50	5	110	90
	AN1H	10	150	90
Clarification of aqueous and nonaqueous solutions	AN3H	30	200	90
Polypropylene Net Filters				
Collection of cells and protein precipitates	PP25	25	360	100
Large particle removal, contamination analysis	PP45	45	430	100
	PP80	80	450	N/A

*Corresponds to first 4 digits of catalogue number

Ordering Information

Description	Pore Size (µm)	Filter Diameter (mm)	Qty/Pk	Catalogue No.
Polypropylene Prefilter	0.6	47	100	AN0604700
	1.2	47	100	AN1204700
	2.5	47	100	AN2504700
	5	47	100	AN5004700
	10	47	100	AN1H04700
	30	47	100	AN3H04700
Polypropylene Net Filter	25	25	100	PP2502500
		47	100	PP2504700
	45	25	100	PP4502500
		47	100	PP4504700
		90	100	PP4509030
Accessory				
Filter Forceps, blunt end, stainless steel			3	XX6200006P

For more information visit: www.merckmillipore/filterdiscs

Swinnex® Filter Holders

Reusable, syringe-driven filter unit

Make your own syringe filter! Swinnex® filter holders give you the flexibility to select the membrane type and diameter that are most appropriate for your application. For sterile filtration, autoclave your Swinnex® filter holders with the membrane in place. Ultraclean or sterilize small volumes of liquids dispensed by a syringe or install in-line to filter larger volumes.

Features & Benefits

- Available in three sizes for a range of process volumes
- Autoclavable with filter in place for sterile filtration

Applications

Ultracleaning or Sterilization of Liquids

Specifications

	Swinnex® 13 Filter Holder	Swinnex® 25 Filter Holder	Swinnex® 47 Filter Holder
Materials			
Housing	Polypropylene	Polypropylene	Polypropylene
Seal Material	Silicone	Silicone	Silicone
Maximum Differential Pressure, bar (psi)	3.5 (50)	3.5 (50)	5.2 (75)
Dimensions			
Length, cm	3.5	3.7	5.4
Diameter, cm	1.7	3.2	5.8
Filter Diameter, mm	13	25	47
Prefilter Diameter, mm	10 (thick depth prefilter)	22 (thick depth prefilter)	42 (thick depth prefilter) or 47 (membrane prefilter)
Filtration Area, cm²	0.7	3.4	13.8
Fitting Inlet	Female Luer-Lok®	Female Luer-Lok®	1/4 in. NPTM
Fitting Outlet	Male Luer-Slip™	Male Luer-Slip™	Female Luer-Slip™
Sterilization Method	Autoclavable with filter in place		

*Use locking inlet connection to avoid leakage at high pressures with < 10 mL syringes

**Accessory stopper, XX2004718, fits outlet connector for seating in 1 L flask, XX1004705.

Ordering Information

Description	Qty/Pk	Catalogue No.
Swinnex® Filter Holder, 13 mm	10	SX0001300
Swinnex® Filter Holder, 25 mm	12	SX0002500
Swinnex® Filter Holder, 47 mm	8	SX0004700
Replacement Parts		
Silicone Gaskets for 13 mm Swinnex® Filter Holder	100	SX0001301
Silicone Gaskets for 25 mm Swinnex® Filter Holder	100	SX0002501
Support Screen, 25 mm, polypropylene	30	XX2702510
Support Screen, 47 mm, polypropylene	1	XX1104715
O-ring (5-329) for Swinnex® 47 mm Filter Holder, silicone	10	XX1104707
Base O-ring for Swinnex® 47 mm Filter Holder, silicone	5	SX0004701
Replacement Parts Kit for Swinnex® 47 mm Filter Holder	1	SX00047RK*

*Replacement Parts Kit for Swinnex® 47 mm Filter Holder includes: (10) base O-rings, (10) silicone filter O-rings, (10) fluoroelastomer O-rings, (10) EP filter O-rings, (10) polypropylene filter support screens, (2) tightening wrenches

For more information visit: www.merckmillipore.com/LabHardware

Stainless Steel Syringe Filter Holders

Reusable, syringe-driven filter unit

Make your own syringe filter! Microsyringe and Swinny filter holders give you the flexibility to select the membrane type and diameter that are most appropriate for your application. For sterile filtration, autoclave your filter holders with the membrane in place. Ultraclean or sterilize small volumes of liquids dispensed by a syringe or install in-line to filter larger volumes.

Features & Benefits

- Available in two sizes for a range of process volumes
- Durable stainless steel construction ensures years of use, decreasing waste from disposable syringe filters
- Autoclavable with filter in place for sterile filtration

Applications

Ultracleaning or Sterilization of Liquids

Specifications

	Swinny	Microsyringe
Materials		
Housing	Stainless steel	Stainless steel
Seals	PTFE	PTFE
Filter Diameter, mm	13	25
Filtration Area, cm²	0.8	3.9
Prefilter Diameter, mm	10	22
Maximum Inlet Pressure, bar (psi)	6.9 (100)	6.9 (100)
Dimensions		
Length, cm	3.3	3.2
Diameter, cm	1.6	3.2
Fittings		
Fitting Inlet	Female Luer-Lok®	Female Luer-Lok®
Fitting Outlet	Male Luer-Slip™	Male Luer-Slip™
Sterilization	Autoclavable with filter in place	

Ordering Information

Description	Qty/Pk	Catalogue No.
Swinny Filter Holder 13 mm, stainless steel	1	XX3001200
Microsyringe Filter Holder 25 mm, Luer-Lok®, stainless steel	1	XX3002500
Microsyringe Filter Holder 25 mm, NPTF, stainless steel	1	XX3002514
Replacement Parts		
Swinny 13 mm Replacement Parts Kit*	1	XX30012RK
Microsyringe 25 mm Replacement Parts Kit**	1	XX30025RK

*Parts Kit includes (4) PTFE O-rings, (4) PTFE support screen gaskets, and (4) stainless steel support screens.

**Parts Kit includes (2) PTFE O-rings, (2) PTFE support screen gaskets, (2) stainless steel support screens, and (2) wrenches.

For more information visit: www.merckmillipore.com/LabHardware

In-Line Filter Holder

Reusable pressure-driven filter housing

Ultraclean liquids or gases in line by pressure filtration. Simply open the housing to change the filter without disturbing the attached plumbing.

Applications
General Filtration (in-line)

Features & Benefits

- Stepped hose barb connections at both ends for easy installation
- Large, easy to grip hand knobs

Specifications

Materials	Filled polypropylene; nylon hand knobs
Filter Diameter, mm	47
Filtration Area, cm²	13.8
Prefilter Diameter, mm	42 (thick depth prefilter) or 47 (membrane prefilter)
Maximum Inlet Pressure, bar (psi)	5.5 (80)
Maximum Operating Temperature, °C	70 at 5.5 bar
Fittings, Inlet/Outlet	1/4 in. NPTF; connector for 6 mm to 9.5 mm I.D. flexible tubing
Dimensions	
Length, cm	12
Diameter, cm	7.6

Ordering Information

Description	Qty/Pk	Catalogue No.
In-Line Filter Holder, 47 mm	1	XX4304700
Replacement Parts		
Hose Adapter, 1/4 in. NPTF to 5/16 in. I.D., polypropylene	2	XX4304704
O-ring (2-131), silicone	6	XX4304701
Hand Knobs	3	XX4304705
Accessories		
Stainless Steel Support Screen, 47 mm	1	XX4304707
PVC Tubing, 3 m, 9.5 mm I.D.	1	XX6700034
O-ring (2-131), fluoroelastomer	6	XX4304702
Filter Forceps, blunt end, stainless steel	3	XX6200006P

For more information visit: www.merckmillipore.com/LabHardware

In-Line Stainless Steel Filter Holders (25 and 47 mm)

For in-line filtration, up to 700 bar

The In-Line Stainless Steel Filter Holders are designed for filtration of gases or liquids at inlet pressures of 20 to 700 bar. Differential pressure depends on the filter type used. All filter holders may be autoclaved. The 47 mm In-Line filter holder (cat. no. XX4404700) is equipped with a back-pressure support screen. It may be autoclaved with filter in place, as long as the optional PTFE-coated support screens (cat. no. XX4404702 and XX4404704) are used. The 47 mm High-Pressure filter holder (cat. no. XX4504700) may be equipped with the upstream filter support screen (cat. no. XX4504704) for back-pressure protection of filter.

Features & Benefits

- Safe for use with inlet pressures up to 700 bar
- Devices are autoclavable; autoclaving with filter in place requires optional PTFE-coated support screens

Applications

In-Line Filtration of Fluid Process Streams

Specifications

	25 mm HP Holder	47 mm Holder	47 mm HP Holder
Materials			
Housing	Stainless steel	Stainless steel	Stainless steel
Gaskets	Buna-N	Silicone	Fluoroelastomer
Filter Diameter, mm	25	47	47
Filtration Area, cm²	2.2	13.8	9.6
Prefilter Diameter, mm	10 (thick depth prefilter)	22 (thick depth prefilter)	42 (thick depth prefilter) or 47 (membrane prefilter)
Maximum Pressure Differential, bar gauge (psig)			
With 3.0, 5.0 and 8.0 µm MCE filters	10.3 (150)	–	10.3 (150)
With all membrane filters except 3.0, 5.0 and 8.0 µm MCE filters	69 (1000)	–	103 (1500)
Maximum Inlet Pressure, bar (psi)	345 (5000)	19 (275)	689 (10,000)
Dimensions			
Height, cm	3.2	2.7	4.4
Diameter, cm	5.1	7.6	8.6
Fittings			
Inlet	1/8 in. NPTF	1/4 in. NPTF	7/16 in.-20 (UNF-3B) female
Outlet	1/8 in. NPTF	1/4 in. NPTF*	7/16 in.-20 (UNF-3B) female**

*1/8" NPTF upstream port with pipe plug

**Adapters to 1/4" NPTF are included

Ordering Information

Description	Qty/Pk	Catalogue No.
HP Filter Holder, 25 mm, stainless steel	1	XX4502500
Filter Holder, 47 mm, stainless steel	1	XX4404700
HP Filter Holder, 47 mm, stainless steel	1	XX4504700
Replacement Parts		
For 25 mm HP Filter Holder		
Replacement Parts Kit, 25 mm filter holder	1	XX45025RK*
For 47 mm Filter Holder		
Back-pressure Screen, 47 mm, stainless steel	1	XX4404703
O-ring (2-131), silicone	6	XX4304701
Support Screen, 47 mm	1	XX4204709
Underdrain Screen, 47 mm	1	5614
Pipe Plug, 1/8 in.	1	009507P
For 47 mm HP Filter Holder		
Replacement Parts Kit, 47 mm filter holder	1	XX45047RK**
Filter Support Screen, 47 mm, stainless steel	1	XX4504704
Inner O-ring, 47 mm, PTFE-treated fluoroelastomer	5	XX4504705
Inner O-ring, 47 mm, PTFE	5	XX4504710
Outer O-ring, 47 mm, fluoroelastomer	10	XX4504713
Note: complete replacement parts information available online.		
Accessories for 47 mm Filter Holder		
PTFE-coated HP Support Screen, 47 mm, stainless steel	1	XX4404702
Vent/Relief Valve	1	XX4204708
Hose Adapter, 1/4 in. NPTM to 3/8 in. I.D.	1	XX2504705

* Includes (3) stainless steel hex-cap screws, (3) LCR-treated Buna-N O-rings (2-018), (1) stainless steel support screen, (1) Allen™ wrench

** Includes (6) each of inlet/outlet adapter, adapter O-ring (2-111), hex-cap screw, inner O-ring, outer O-ring

For more information visit: www.merckmillipore.com/LabHardware

Standing Stainless Steel Filter Holders (90 and 142 mm)

Filter holders supported by legs

The stainless steel filter holders are designed to ultraclean or sterilize liquids or gases by pressure filtration. PTFE-faced support screens permit autoclaving with membranes in place.

Specifications

	90 mm Holder	142 mm Holder
Materials		
Holder	316 stainless steel with anodized aluminum legs	316 stainless steel with anodized aluminum legs
O-rings	PTFE	PTFE
Filter Diameter, mm	90	142
Filtration Area, cm²	45.5	97
Prefilter Diameter, mm		
Type AP	75	124
Type RW	90	142
Maximum Inlet Pressure, bar (psi)	19 (275)	14 (200)
Maximum Differential Pressure, bar (psid)	5 (75)	7 (100)
Dimensions		
Height, cm (in)	17.1 (plus inlet connector)	27 (plus inlet connector)
Diameter, cm (in)	12.1	18.4
Connections		
Fittings, Inlet/Outlet	1/4 in. NPTF with connections supplied for 9.5 mm I.D. hose	1-1/2 in. Sanitary Flange with clamps and adapters supplied for 14 mm I.D. hose
Vent/Relief Valve	1/8 in. NPTM vent/relief valve attachment	1/8 in. NPTM vent/relief valve attachment
Shipping Weight, kg (lb)	2.8 (6.2)	6.4 (14.1)

Ordering Informaiton

Description	Qty/Pk	Catalogue No.
Filter Holder, 90 mm, stainless steel	1	YY3009000
Filter Holder, 142 mm, stainless steel	1	YY3014236
90 mm Holder Replacement Parts		
Hose Adapter, 1/4 in. NPTM to 3/8 in. I.D.	1	XX2504705
Vent/Relief Valve	1	XX4204708
O-rings, 90 mm filter housing, PTFE	4	YY3009053
Support Screen, PTFE-coated	1	YY3009054
Underdrain Support, 90 mm	1	YY2209058
Support Legs	3	YY2209059
142 mm Holder Replacement Parts		
Hand Knob	1	YY2214257
Adapter 1-1/2 in. TC to 14 mm	1	YY2004076
1-1/2 in. TC silicone gasket	10	YY2004055
Clamp 1 1/2 in. TC	1	YY2004045
Vent/Relief Valve, 9 bar (125 psig)	1	YY3029366
O-ring (2-251), PTFE	1	YY2214253
O-ring (2-251), silicone	4	YY2214265
Inlet Flow Deflector, 316 holder	1	YY3029307
Support Screen for 142 mm filter holder, PTFE-coated	1	YY3014234
Underdrain Support, 142 mm	1	YY2214258
Legs with Caps, 3/16 in. wrench	3	YY2214251
Handwheel Wrench for 142 mm holder	1	YY2214252

Note: complete replacement part information is available online.

For more information visit: www.merckmillipore.com/LabHardware

Stainless Steel Pressure Filter Holders

Pressure-driven filtration of up to 340 mL of liquid

These filter holders are ideal for ultracleaning or sterilizing batch volumes of liquids. The cylindrical barrel holds 100 mL (or 340 mL) of liquid, which is filtered by externally applied gas pressure through a suitable filter supported on the holder base.

Features & Benefits

- Filter holder has reservoir to hold 100 mL (or 340 mL) of liquid for batch filtration
- Autoclavable with membrane in place for sterile filtration

Applications

Batch Filtration

Specifications

Materials	Stainless steel barrel, base, filter support screen, top cap, and tubing adapter; anodized aluminum locking ring; silicone stopper
Filter Diameter, mm	47
Filtration Area, cm²	11.3
Prefilter Diameter, mm	42 (thick depth prefilter) or 47 (membrane prefilter)
Maximum Inlet Pressure, bar (psi)	6.9 (100)
Connections	
Inlet	9.5 mm (3/8 in.) hose connector
Outlet	No. 8 perforated silicone stopper mounts in standard 1 L filtering flask
Dimensions	
Height, cm (100 mL holder)	29.2
Height, cm (340 mL holder)	53.3
Diameter, cm	7

Ordering Information

Description	Qty/Pk	Catalogue No.
Stainless Steel Pressure Filter Holder, 47 mm, 100 mL	1	XX4004700
Stainless Steel Pressure Filter Holder, 47 mm, 340 mL	1	XX4004740
Replacement Parts		
Top Cap with Hose Adapter	1	000205
Locking Ring Gasket, PTFE	5	XX4004714
O-rings, PTFE	5	XX4004716
Filter Support Screen, stainless steel, 47 mm	1	XX4004704
Gasket, PTFE	25	XX2004703
No. 8 Stopper, 9.5 mm (3/8 in.) hole, silicone	5	XX2004718
Replacement Parts Kit, 47 mm holder	1	XX40047RK*
*Replacement Parts Kit includes: (5) top cap O-rings, (5) locking ring gaskets, (5) filter sealing O-rings, (5) screen gaskets		
Note: complete replacement part information is available online.		
Accessories		
Vacuum Filtering Flask, 1 L	1	XX1004705
Vaccum Filtering Flask, 4 L	1	XX1004744
Tubing, 3/16 in. I.D. x 140 cm, silicone	1	XX7100004
3 m PVC tubing with 9.5 mm I.D.	1	XX6700034

For more information visit: www.merckmillipore.com/LabHardware

MilliSolve™ Filtration System

Bottle-to-bottle filtration of solvents and buffers

The MilliSolve™ Filtration System has been designed for the filtration of liquid chromatography buffers and solvents under vacuum. The system uses a 0.45 µm membrane filter to eliminate particles which can shorten column life. Vacuum filtration with the MilliSolve™ system also removes a large portion of dissolved gases from buffers, reducing the risk of air bubbles interfering with LC instruments. With automatic and continuous filtration, there is no need to add liquid into a funnel as filtration progresses. Filtration occurs in a closed system, which is important when filtering hazardous fluids. If open funnel filtration is required, the 300 mL funnel replaces the vacuum cover.

Features & Benefits

- Automatic, continuous solvent and buffer filtration eliminates the need to pour during filtration
- 2 L receiving flask includes plug and tubing for storage, eliminating filtered buffer transfer, reducing labor and lessening contamination risk
- Conical 2 L flask bottom allows access to all filtered solvent or buffer

Applications

Mobile Phase Preparation, Buffer Filtration

Ordering Information

Description	Qty/Pk	Catalogue No.
MilliSolve™ Filtration System, complete with 2 L flask	1	XX1604700
Replacement Parts		
Vacuum Flask, 2 L	1	XX1604705
Glass Base and Cap, 47 mm*	1	XX1504702
Vacuum Cover, ground glass	1	XX1604701
Spring Clamp, 47 mm, aluminum	1	XX1004703
Tubing for Solvent/Buffer, PTFE, 70 cm	1	XT1200000
Glass Funnel, 300 mL, borosilcate	1	XX1004704
Accessories		
Vacuum Flask, 5 L, with conical bottom, glass	1	XX1604706
Glass Base and Cap with Stainless Steel Screen, 47 mm	1	XX1504732
Ground Joint Flask, 1 L	1	XX1504705
Fluoropore™ Membrane, PTFE, hydrophobic, unlaminated, 0.5 µm, 47 mm, white, plain	100	FHUP04700
Durapore® Membrane, PVDF, hydrophilic, 0.45 µm, 47 mm, white, plain	100	HVLP04700
Tubing, 3/16 in. I.D. x 140 cm, silicone	1	XX7100004

*Higher porosity stainless steel support screen (XX1504732 instead of glass support, XX1504702) is easier to clean and improves filtration under vacuum.

For more information visit: www.merckmillipore.com/LabHardware

Millicup™ Filter Unit

Vacuum-driven, disposable bottle-top filtration

The Millicup™ Filter Unit provides fast and effective filtration of solvents and buffers (up to 3 L) used in HPLC and other analytical techniques.

Applications

Mobile Phase Preparation, Buffer Filtration

Features & Benefits

- No preparation or clean-up saves time
- Available with low-protein binding hydrophilic Durapore® PVDF, hydrophobic Fluoropore™ PTFE, and hydrophilic LCR PTFE membranes
- Ultraclean design and safe operation

Specifications

Funnel Material	HDPE
Outlet Fitting	Universal bottle top
Filtration Area, cm²	11.5
Process Volume, mL	3000
Vacuum Limit	685 mm Hg differential at 25 °C
Maximum Operating Temperature, °C	50
Dimensions	
Height, mm	120
Diameter, mm	84

Ordering Information

Description	Filter Pore Size (µm)	Filter Material	Qty/Pk	Catalogue No.
Millicup™ Filter Unit, 300 mL	0.45	Hydrophobic PTFE	10	SJFHM4710
		Hydrophilic PVDF	10	SJHVM4710
		Hydrophilic PTFE	10	SJLHM4710

For more information visit: www.merckmillipore.com/LabHardware

LiChrolut® Columns

Reliable and rapid solid-phase extraction

The primary goal of solid-phase extraction with LiChrolut® columns is the selective extraction of the components of interest from a complex sample or much larger sample volume prior to actual analysis (e.g., HPLC, GC, TLC). As solid-phase extraction works on the principle of liquid chromatography, this is achieved by using strong but reversible interactions between the analyte and surface of the stationary phase. Typical interactions are hydrophobic (i.e., Van der Waals forces), polar (i.e., hydrogen bonding, dipole-dipole forces) and ion exchange interactions. Interaction between stationary phase and matrix should not occur.

Features & Benefits

- Higher recoveries without the formation of emulsion
- High precision of analytical results through use of disposable cartridges
- Optimized, validated and certified manufacturing

Applications

Solid Phase Extraction

Ordering Information

Description	Qty/Pk	Catalogue No.
LiChrolut® EN (40-120 µm), 200 mg, 3 mL, PP	30 pc	1.19870.0001
LiChrolut® EN (40-120 µm), 200 mg, 6 mL, PP	30 pc	1.19941.0001
LiChrolut® RP-18 (40-63 µm), 200 mg, 3 mL PP	50 pc	1.02014.0001
LiChrolut® RP-18 endcapped (40-63 µm), 200 mg, 3 mL PP	50 pc	1.19847.0001
LiChrolut® Si (40-63 µm), 200 mg, 3 mL PP	50 pc	1.02021.0001
LiChrolut® CN (40-63 µm), 200 mg, 3 mL PP	50 pc	1.19698.0001
Florisil® (150-250 µm), 1.000 mg, 6 mL PP	30 pc	1.19127.0001
LiChrolut® SCX (40-63 µm), 200 mg, 3 mL PP	50 pc	1.02016.0001
LiChrolut® TSC (40-63 µm), 300 mg, 3 mL PP	50 pc	1.19767.0001

For more information visit: www.merckmillipore.com/lichrolut

EXtrelut® Columns

Liquid-liquid extraction in its most effective form

EXtrelut® NT sorbent columns simplify liquid-liquid extraction by replacing separation funnels. Using a single step is more efficient and saves solvent, material and time in contrast to classical funnel separation. With its intuitive working principle, higher recovery and cleaner extraction can be achieved. The aqueous sample is simply applied to the EXtrelut® NT sorbent, which distributes itself as a thin film over the chemically inert matrix and thus acts as a stationary phase.

Features & Benefits

- Save solvents
- Easy to use
- Highly efficient

Applications

Liquid-Liquid Extraction

Ordering Information

Description	Qty/Pk	Catalogue No.
EXtrelut® NT1	100 columns	1.15094.0001
EXtrelut® NT3	50 columns	1.15095.0001
EXtrelut® NT20	25 columns	1.15096.0001
EXtrelut® NT refill packs	50 bags	1.15093.0001

For more information visit: www.merckmillipore.com/extrelut

Filter Forceps

For safe handling of filter membranes

Ensure your filtration membranes are not damaged during handling by using these blunt-ended forceps.

Features & Benefits

- Beveled, unserrated tips to protect delicate membrane surfaces
- May be sterilized by autoclaving or flame-sterilization

Applications

Gentle Handling of Membranes

Ordering Information

Description	Qty/Pk.	Catalogue No.
Filter Forceps, blunt end, stainless steel	3	XX6200006P

For more information visit: www.merckmillipore.com/LabHardware

Filtering Flasks

For vacuum filtration with filter holders

These side-arm flasks are designed for use in vacuum filtration procedures with various filter holders.

- 1 L and 4 L flasks accept No. 8 perforated stopper
- 125 mL flask accepts No. 5 stopper

Features & Benefits

- Side arm connects to vacuum source with 3/8 in. I.D. hose

Applications

Vacuum Filtration Using Filter Holders

Ordering Information

Description	Qty/Pk	Catalogue No.
Vacuum Filtering Flask, 125 mL	1	XX1002505
Vacuum Filtering Flask, 1 L	1	XX1004705
Vaccum Filtering Flask, 4 L	1	XX1004744
Accessories		
Tubing, 3/16 in. I.D. x 140 cm, silicone	1	XX7100004
No. 5 Perforated Stopper, silicone	5	XX1002508
No. 8 Perforated Stopper, silicone	5	XX1004708
Chemical Duty Pump, 115 V/60 Hz	1	WP6111560
Chemical Duty Pump, 220 V/50 Hz	1	WP6122050
Chemical Duty Pump, 100 V/50-60 Hz	1	WP6110060

For more information visit: www.merckmillipore.com/LabHardware

Hand Vacuum Pump and Syringes

For hand-held filtration of small volumes

Use polypropylene syringes to dispense liquids into small containers and pressure-filter small volumes through filter holders or filter units with female Luer-Slip™ inlets. Syringes have male Luer-Slip™ outlets. An optional two-way vacuum valve, nylon male-to-male Luer adapter and rubber tubing with male Luer inlet converts this standard syringe into a hand vacuum pump. For sterile applications, an autoclavable stainless steel vacuum syringe with stainless steel, two-way valve is available.

Applications

Small-Volume Liquid Filtration, Hand Pump for In-Field Filtration with Sterifil® Units and Other Filter Holders

Ordering Information

Description	Qty/Pk	Catalogue No.
Plastic Syringes, 20 mL Luer-Slip™, polypropylene	12	XX1102012
Plastic Syringes, 50 mL Luer-Slip™, polypropylene	5	XX1105005
Hand Vacuum Pump, polypropylene	1	XKEM00107
Hand Vacuum Pump, stainless steel	1	XX6200035
Replacement Parts: Polypropylene Pump		
2-way Vacuum Valve, plastic	1	XKEM00104
Adapter, male Luer-Lok®, nylon	4	XX1102503
Replacement Parts: Stainless Steel Pump		
Replacement Parts Kit*	1	XX6200036

*Replacement Parts Kit includes: (1) plunger O-ring, (2) valve O-rings, (2) stainless steel ball valve balls, (2) barrel compression valve springs, (2) PTFE valve seals, and (2) compression valve springs.

For more information visit: www.merckmillipore.com/LabHardware

High Output / Chemical Duty Pumps

For flow rates up to 37 L/min

The High Output and Chemical Duty pumps can support high flow rates to decrease process filtration time. The High Output Pump features a piston-driven design for greater power. The Chemical Duty Pump has a chemically-resistant head and diaphragm for use with corrosive chemicals and solvents. Both pumps come with 70 cm of 1/4 in. tubing and a Millex®-FA$_{50}$ filter for in-line moisture protection. Both are UL-listed and CE-marked.

Features & Benefits

- High flow rates decrease filtration process time
- Optional chemical-resistant internal components for compatibility with corrosive vapors
- Portable design allows for easy sharing between workstations

Applications

Vacuum Source for Filter Holders, Manifolds, and Devices, including Samplicity® Filtration System, SNAP i.d.® 2.0 System, Multiscreen®$_{HTS}$ Filtration Manifold, and Stericup® Filters

Specifications

	High Output Pump	Chemical Duty Pump
Maximum Vacuum, mbar (in. Hg)	921 (27.2)	813 (24)
Maximum Pressure, bar (psig)	5.4 (80)	2.45 (35)
Maximum Flow Rate, L/min (CFM)	34 (1.2)	37 (1.3)
Materials (pump head, housing, regulator)	Cast aluminum	Cast aluminum
Weight, kg (lbs)	5.3 (11.7)	4.1 (9.0)
Dimensions, cm (in.) H x W x L	20.3 x 22.9 x 25.4 (8 x 9 x 10)	17.8 x 17.8 x 20.3 (7 x 7 x 8)
Connections	1/4 in. Stepped hose barb	1/4 in. Stepped hose barb

Ordering Information

Description	Qty/Pk	Catalogue No.
Chemical Duty Pump, 115 V/60 Hz	1	WP6111560
Chemical Duty Pump, 220 V/50 Hz	1	WP6122050
Chemical Duty Pump, 100 V/50-60 Hz	1	WP6110060
High Output Pump, 115 V/60 Hz	1	WP6211560
High Output Pump, 220 V/50 Hz	1	WP6222050
High Output Pump, 100 V/50-60 Hz	1	WP6210060
Replacement Parts		
Chemical Duty Pump Maintenance Kit*	1	WP61MNT00
Chemical Duty Pump Rebuild Kit**	1	WP61RBD00
High Output Pump Maintenance Kit*	1	WP62MNT00
High Output Pump Rebuild Kit**	1	WP62RBDNA

*Maintenance Kit includes: (1) diaphragm, (1) diaphragm liner, (1) O-ring gasket, (4) head screws, (2) handle screws

**Rebuild Kit includes: (1) diaphragm hold-down plate assembly, (1) valve plate assembly, (1) pump head, (1) vacuum gauge, (1) pressure gauge, (4) head screws, (2) handle screws

For more information visit: www.merckmillipore.com/LabHardware

Millivac™ Vacuum Pumps

Maintenance-free, mini-diaphragm pumps

Millivac™ Mini and Maxi vacuum pumps are compact, maintenance-free pumps that provide a consistent source of vacuum for filtration and other laborabory applications. A patented diaphragm design has reduced the footprint of the pumps compared to conventional models.

Features & Benefits

- Lubrication not required
- Quiet, compact design conserves previous lab bench space
- Millivac™ Maxi pump is gas-tight, has a PTFE-coated diaphragm, and is compatible with slightly aggressive or corrosive gases and vapors

Applications

Millivac™ Mini Pump for Water and Aqueous Solutions; Millivac™ Maxi Pump for Larger Volumes or Viscous Solutions

Specifications

	Millivac™ Mini	Millivac™ Maxi
Materials	Ryton head; EPDM membrane with fluoroelastomer valves	PTFE-coated diaphragm with FFPM valves
Max. Vacuum, L/min	6	16
Fittings	Hose connector for 4 mm I.D. tubing	Hose connector for 6 mm I.D. tubing
Dimensions		
Length, cm	22.6	36.1
Width, cm	9	9
Height, cm	14.1	14.1
Weight, kg	1.9	3.95

Ordering Information

Description	Qty/Pk	Catalogue No.
Millivac™ Mini Vacuum Pump, 115 V	1	XX5411560
Millivac™ Maxi Vacuum Pump, 230 V	1	SD1P014M04
Millivac™ Mini Vacuum Pump, 230 V	1	XF5423050
Note: All Millivac™ pumps come with 70 cm of vacuum tubing and a Millex®-FG$_{50}$ filter to protect against water intrusion.		
Replacement Parts		
Millivac™ Mini EPDM Maintenance Kit*	1	XF5423055
Millivac™ Mini PTFE Maintenance Kit*	1	XF5423056
*Maintenance Kit includes 1 diaphragm, 2 valves, 2 gaskets. Materials depends on kit type.		
Accessories		
Millex®-FG Filter Unit, 0.20 µm, hydrophobic PTFE, 50 mm	10	SLFG05010
Tubing, 3/16 in. ID x 140 cm, silicone	1	XX7100004
Vacuum Filtering Flask, 1 L	1	XX1004705
No. 8 Stopper, 9.5 mm (3/8 in.) hole, silicone	5	XX2004718

For more information visit: www.merckmillipore.com/LabHardware

Dispensing Pressure Vessels

For dispensing liquid volumes up to 20 L

Dispensing pressure vessels hold liquid for filtration through pressure-driven filter holders.

Features & Benefits

- Vessels meet ASME®-UM Code requirements
- Closures are secured by cam-lock handle
- Accessories include pressure gauges, hose connectors, and code-complying pressure relief valves

Applications

Large-Volume Filtration, Reservoir for Buffer or Solvent Dispensing

Specifications

Materials	316 stainless steel body; stainless steel fittings; fluoroelastomer gaskets and O-rings; molded Neoprene rubber base
Fittings	1/4 in. NPTF elbow fittings for inlet and outlet (labeled); 1/4 in. NPTF for pressure gauge and vent/relief valve attachment
Maximum Inlet Pressure, bar (psi)*	6.9 (100)
Maximum Temperature, °C	121

*Locally applicable pressure vessel codes should be consulted for maximum allowable pressure. Do not use vessels under vacuum without accessory vacuum closure.

Ordering Information

Description	Qty/Pk	Catalogue No.
Dispensing Pressure Vessel, 1 gal	1	XX6700P01
Dispensing Pressure Vessel, 5 L	1	XX6700P05
Dispensing Pressure Vessel, 10 L	1	XX6700P10
Dispensing Pressure Vessel, 20 L	1	XX6700P20
Replacement Parts		
Outlet Dip Tube, 5 L vessel	1	6977
Outlet Dip Tube, 10 L vessel	1	6978
Outlet Dip Tube, 20 L vessel	1	6979
Plug, 1/4 in. NPT, stainless steel	2	YY1301009
Street Elbow, 1/4 in. NPTF to M	1	XX6700104
Vessel Cover, cam-lock	1	6976
O-ring, fluoroelastomer	1	XX6700059

For more information visit: www.merckmillipore.com/LabHardware

Pressure Vessel, 600 mL

For dispensing volumes up to 600 mL

This vertical-style pressure vessel was designed for particle-free filling of vials with extemporaneous drug, allergenic extracts, and ophthalmic solutions. A Swinnex® filter holder can be attached to the outlet ball valve for point-of-use filtration.

Features & Benefits

- Vertical design minimizes hold-up volume and product loss
- Attach a Swinnex® filter holder to outlet to filter effluent prior to use

Applications

Dispensing Small Volumes of Liquid, Vial Filling

Specifications

Materials	Clear polycarbonate cylinder; white polypropylene end caps; silicone O-rings; polyethylene pressure tubing; Delrin® ball valve
Fittings	1/4 in. NPTF tubing connector, relief, outlet ball valves
Maximum Inlet Pressure, bar	6.9
Diameter, cm	9
Height, cm	41.9; not including filter holder
Weight, kg	1.1

Ordering Information

Description	Qty/Pk	Catalogue No.
Pressure Vessel, 600 mL	1	XX1100000
Accessories		
Swinnex® Filter Holder	1	SX0004700

For more information visit: www.merckmillipore.com/LabHardware

EZ-Fit® Filter Holder Manifolds

Simultaneous filtration of three or six test samples

The EZ-Fit® Manifold is designed to increase laboratory workflow efficiency and make laboratory filtration easier. It features quick-fit connections for assembly and disassembly without tools and a low profile to increase operator comfort. Plus, all internal areas are accessible for easy cleaning, facilitating biofilm prevention. Different filtration heads, all with quick-fit connections, make the manifold compatible with disposable filtration devices, as well as stainless steel and glass funnels.

Features & Benefits

- Different filtration heads for both reusable and disposable filtration devices
- Each component can be removed by hand and autoclaved
- Easy access to all inner parts for efficient cleaning
- Quick-fit connections for the vacuum tubing, the filtration heads and the on/off valves
- Low height for ease of use in laminar flow hoods

Applications

Universal Laboratory Analysis, Water Testing Analysis, Microbiological Analysis, Particle Contamination Analysis

Specifications

Materials	
Handles, valve (trigger and knob)	Aluminum
Connectors, pipe and valve body	316L stainless steel
Connectors, seals and valve seals	EPDM
Filtration O-ring	Silicone
Dimensions, mm*	168 W x 433 L x 117 H
Weight, kg*	2.9
Tubing Connection	Hose barb for 10 mm tubing (NPS 3/8 or DN10)
Autoclaving Conditions	121 °C for 30 min

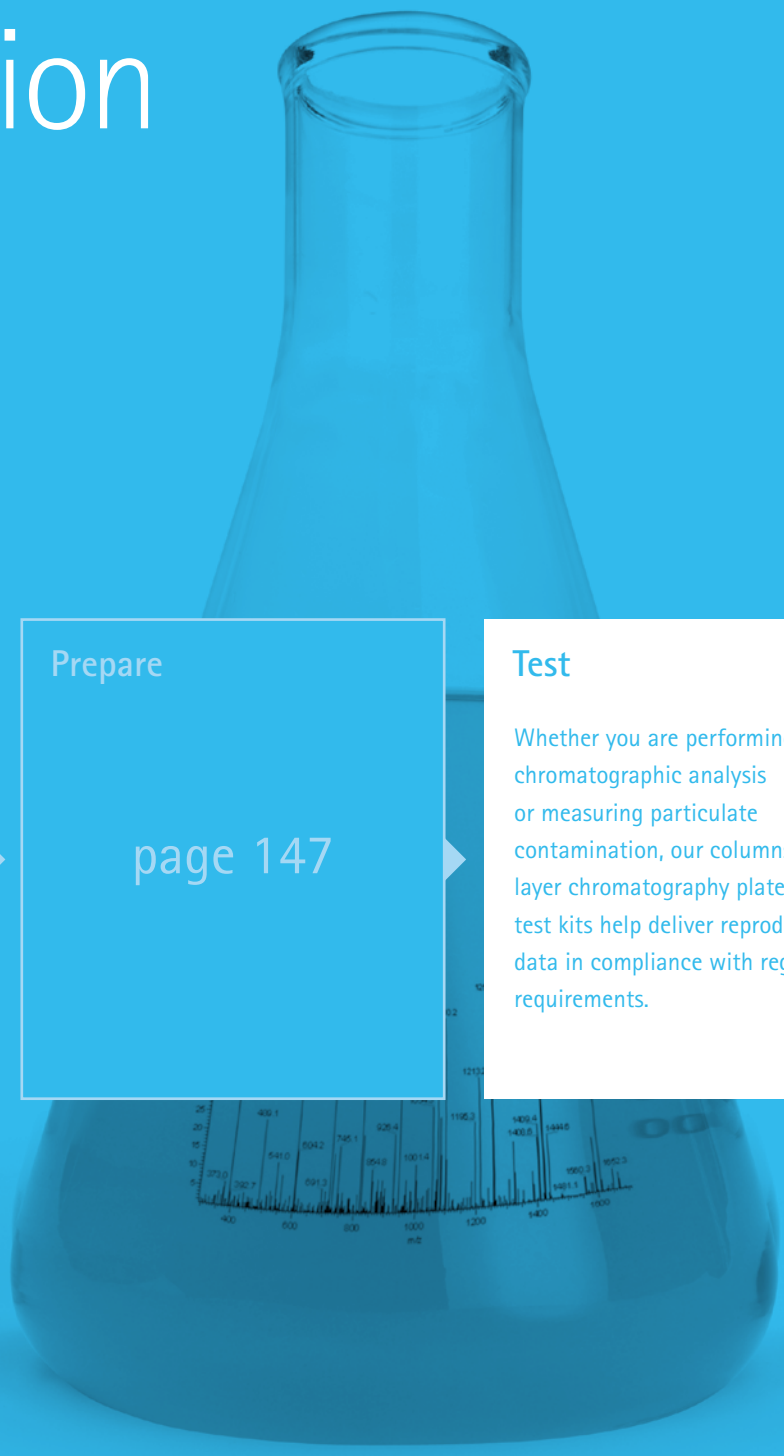
*For a 3-place manifold (cat. no. EZFITMIC03)

Ordering Information

Description	Qty/Pk	Catalogue No.
EZ-Fit® Manifold, 1-place, stainless steel	1	EZFITL0W01
EZ-Fit® Manifold, 3-place, stainless steel	1	EZFITL0W03
EZ-Fit® Manifold, 6-place, stainless steel	1	EZFITL0W06
Replacement Parts		
EZ-Fit® Manifold Quick Connection, 1 plug and 1 connector	1	EZFITQUICKC
EZ-Fit® Manifold Check Valve	3	EZFITBACKF
EZ-Fit® Manifold O-ring Kit	3	EZFITGASK3
EZ-Fit® Manifold Complete Valve	1	EZFITVALV1
EZ-Fit® Manifold Removable Porous Filter Support, stainless steel	3	EZFITFRIT3
EZ-Fit® Manifold Maintenance Kit including lubricant and brush	1	EZFITMAKIT
No.8 Blue Stopper (9.5 mm - 3/8 in.), silicone	5	XX2004718
Accessories		
Vacuum Filtering Flask, 1 L	1	XX1004705
Filter Forceps, blunt end, stainless steel	3	XX6200006P
Hose Adapter, 1/4 in. NPTF to 5/16 in. ID, polypropylene	2	XX4304704
Millex®-FG Filter Unit, 0.2 µm, hydrophobic PTFE, 25 mm, PVC, ethylene oxide-sterilized	50	SLFG025LS
High Output Pump, 115 V/60 Hz	1	WP6211560
High Output Pump, 220 V/50 Hz	1	WP6222050
High Output Pump, 100 V/50–60 Hz	1	WP6210060
EZ-Stream® Vacuum Pump	1	EZSTREAM1

For more information visit: www.merckmillipore.com/LabHardware

Analytical Sample Preparation



Collect

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Prepare

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Test

Whether you are performing chromatographic analysis or measuring particulate contamination, our columns, thin layer chromatography plates and test kits help deliver reproducible data in compliance with regulatory requirements.

Chromolith® HPLC Columns

Speed and performance in monolithic form

Chromolith® HPLC columns provide excellent separations in a fraction of the time required by a standard particulate column, because Chromolith® columns are made from highly porous, monolithic rods of silica with a revolutionary, bimodal pore structure. Instead of being packed with small particles, each of these monolithic columns consists of a single piece of high-purity, polymeric silica gel.

Features & Benefits

- Increased analysis speed
- Improved HPLC system security
- Column length no longer limited by pressure
- Cost savings from increased sample throughput can justify the expense of a method revalidation within one month

Applications

Liquid Chromatography

Ordering Information

Description	Qty/Pk	Catalogue No.
Chromolith® HighResolution RP-18 endcapped 100-4.6 mm	1 pc	1.52022.0001
Chromolith® Performance RP-18 endcapped 100-4.6 mm	1 pc	1.02129.0001
Chromolith® Performance RP-18 endcapped 100-3 mm	1 pc	1.52001.0001
Chromolith® Performance RP-18 endcapped 100-2 mm	1 pc	1.52006.0001
Chromolith® Performance NH_2 100-4.6 mm	1 pc	1.52028.0001
Chromolith® Performance Si 100-4.6 mm	1 pc	1.51465.0001
Chromolith® Performance CN 100-4.6 mm	1 pc	1.52048.0001
Chromolith® Performance Phenyl 100-4.6 mm	1 pc	1.52058.0001
Chromolith® Performance Diol 100-4.6 mm	1 pc	1.53172.0001

For more information visit: www.merckmillipore.com/chromolith

Purospher® Columns

The all-around, high-performance solution

The Purospher® RP-18 column is polar endcapped and suitable for separations of strong basic or chelating compounds (no acidic compounds) and separations of hydrophilic compounds with a high percentage of water in the mobile phase.

The Purospher® RP-18 endcapped column is suitable for separations of compley samples with simple eluents.

The Purospher® RP-18 HC column is not endcapped and is suitable for separations of polar, non-basic compounds.

The Purospher® STAR RP-18 endcapped column allows the tailing-free separation of neutral, acidic, basic or chelating compounds and is available as a special UHPLC column.

THe Purospher® STAR RP-8 endcapped column is suitable for separations of polar compounds or separation of positionally isomeric compounds.

Features & Benefits

- Enhanced performance and excellent peak symmetry
- Outstanding batch-to-batch reproducibility
- Balanced chromatographic properties
- Excellent separation efficiency
- Extended column lifetime

Applications

Liquid Chromatography

Ordering Information

Description	Qty/Pk	Catalogue No.
Purospher® STAR RP-18 endcapped 150-4.6 mm	1 pc	1.50470.0001
Purospher® STAR RP-18 endcapped 100-3 mm	1 pc	1.50398.0001
Purospher® STAR RP-18 endcapped UHPLC 100-4.6 mm	1 pc	1.50648.0001
Purospher® RP-18 endcapped 250-4 mm	1 pc	1.50169.0001
Purospher® RP-18 250-4 mm	1 pc	1.50144.0001
Purospher® STAR RP-8 endcapped 150-4.6 mm	1 pc	1.51453.0001
Purospher® STAR NH_2 150-4.6 mm	1 pc	1.50247.0001
Purospher® STAR Si 150-4.6 mm	1 pc	1.50356.0001

For more information visit: www.merckmillipore.com/purospher

LiChrospher® Columns

Silica carrier for consistently top-rate results

Reliable, versatile, traditionally produced spherical silica carriers, LiChrospher® columns are available with a number of different modifications. The polar-modified phases, LiChrospher® CN, LiChrospher® NH_2 and LiChrospher® DIOL columns , as well as unmodified LiChrospher® Si columns are best for normal-phase HPLC. Furthermore, LiChrospher® PAH columns are highly efficient and selective for the separation of polycyclic aromatic hydrocarbons (PAH), and LiChrospher® WP 300 RP-18 columns are suitable for the separation of peptides and low molecular weight proteins.

Features & Benefits

- Well-balanced pressure / separation performance ratio
- Widely used for a broad range of applications

Applications

Liquid Chromatography

Ordering Information

Description	Qty/Pk	Catalogue No.
LiChrospher® 100 RP-18 endcapped 150-4.6 mm	1 pc	1.50604.0001
LiChrospher® 100 RP-18 150-4.6 mm	1 pc	1.50601.0001
LiChrospher® 100 RP-8 endcapped 150-4.6 mm	1 pc	1.50638.0001
LiChrospher® 100 RP-8 150-4.6 mm	1 pc	1.50635.0001
LiChrospher® 60 RP-select B 150-4.6 mm	1 pc	1.50641.0001
LiChrospher® 100 CN 250-4 mm	1 pc	1.50892.0001
LiChrospher® 100 Diol 250-4 mm	1 pc	1.50836.0001
LiChrospher® 100 NH_2 250-4 mm	1 pc	1.50834.0001
LiChrospher® 60 Si 250-4 mm	1 pc	1.50830.0001

For more information visit: www.merckmillipore.com/lichrospher

SeQuant® ZIC®-HILIC Columns

Ideal for polar and hydrophilic compounds

The ideal choice for separation of all types of polar and hydrophilic compounds is SeQuant® ZIC®-HILIC and ZIC®-pHILIC HPLC columns. Reproducible retention of compounds that are difficult to separate on reversed-phase HPLC columns is ensured by the high-performance, zwitterionic stationary phase in these columns. Straightforward separation of compounds such as acids and bases, anions and cations, carbohydrates, metabolites, metal complexes, amino acids, peptides, protein digests and oligonucleotides can therefore be achieved with a selectivity complementary to reversed-phase columns. Enhanced LC-MS sensitivity is an additional benefit of using these columns.

Features & Benefits

- Improved separation of hydrophilic and polar compounds
- Orthogonal selectivity to reversed-phase columns
- Optimal combination with LC-MS
- Excellent stability

Applications

Liquid Chromatography

Ordering Information

Description	Qty/Pk	Catalogue No.
SeQuant® ZIC®-HILIC PEEK HPLC Column 100-4.6 mm	1 pc	1.50453.0001
SeQuant® ZIC®-HILIC PEEK HPLC Column 100-2.1 mm	1 pc	1.50447.0001
SeQuant® ZIC®-pHILIC PEEK HPLC Column 100-4.6 mm	1 pc	1.50464.0001
SeQuant® ZIC®-pHILIC PEEK HPLC Column 100-2.1 mm	1 pc	1.50462.0001
SeQuant® ZIC®-cHILIC PEEK HPLC Column 100-4.6 mm	1 pc	1.50660.0001
SeQuant® ZIC®-cHILIC PEEK HPLC Column 100-2.1 mm	1 pc	1.50657.0001

For more information visit: www.merckmillipore.com/hilic

TLC/HPTLC Plates

Unique quality from the pioneer in TLC

Thin layer chromatography (TLC) is a simple, fast and highly versatile separation tool for both qualitative and quantitative analyses. The technique can be used to resolve virtually all classes of substances, including pesticides, steroids, alkaloids, lipids, nucleotides, glycosides, carbohydrates, fatty acids and many others. Apart from the manual method of classical TLC, the technique can also be automated as in instrumental high performance thin layer chromatography (HPTLC). Furthermore, it can be easily extended to preparative scale for PLC.

Features & Benefits

- Disposable plates ensure simplified sample preparation
- Direct visualization of results by UV or derivatization
- Simultaneous analysis of many samples under identical conditions using easy, two-dimensional separation

Applications

Thin Layer Chromatography

Ordering Information

Description	Qty/Pk	Catalogue No.
TLC Silica Gel 60 F_{254} 25x25 cm	25 plates	1.05715.0001
HPTLC Silica Gel 60 F_{254} 20x10 cm	50 plates	1.05642.0001
TLC Silica Gel 60 RP-18 F_{254}s 20x20 cm	25 plates	1.15389.0001
HPTLC Silica Gel 60 RP-18 F_{254} 10x20 cm	50 plates	1.16225.0001
HPTLC LiChrospher® Silica Gel 60 F_{254}s 20x20 cm	25 plates	1.05586.0001

For more information visit: www.merckmillipore.com/tlc

Fluid Sampling Kit

Field-based, liquid analysis with 37 mm monitors

The Fluid Sampling Kit is a complete solution for field-based fluid collection and contamination analysis. The stainless steel sampler assembly plugs into a quick-release valve installed in the system line, which allows a measured quantity of liquid to pass through the monitor. A valved syringe serves as a pump to remove residual liquid from the monitor. Kit is compatible with our 37 mm contamination monitors and matched-weight monitors.

Features & Benefits

- Sturdy carrying case and stainless steel sampling assembly provide years of in-field service
- Fluid Sampling Kit includes 12 Tenite® contamination monitors

Applications

In-Field Collection and Analysis of Jet Fuel, Turbine Lubricants, Water and Other Liquids

Specifications

Materials	Stainless steel with stainless-clad PTFE hose; Tenite® monitors
Fittings	Quick-release valve and plug with 1/8" NPTF thread and fluoroelastomer seals; matching nipple on sampling hose
Maximum Pressure, bar (psi)	6.9 (100)
Dimensions	
Length, cm	36.8
Height, cm	12.5
Width, cm	23.5
Shipping Weight, kg (lb)	4.5 (9.9)

Warning: For filtering flammables with the Fluid Sampling Kit, properly ground the unit and secure all grounding connections.

Ordering Information

Description	Qty/Pk	Catalogue No.
Fluid Sampling Kit	1	XX6403730*
Common Components		
Fluid Contamination Analysis Monitor	50	MAWP037P0
Fluid Contamination Analysis Monitor, matched-weight membrane	50	MAWP037PM
PTFE Tape 12.5 mm x 6.6 m roll	1	TP0001326
Filter Forceps, blunt end, stainless steel	3	XX6200006P
Hand Vacuum Pump, stainless steel	1	XX6200035
Tubing, 3/16 in. I.D., Tygon	1	XX6403780
Hose Connector, 1/8 in. NPTF quick-release valve	1	XX6403735
Sampler Valve Hose Assembly	1	XX6403708
Remote Sampling Assembly	1	XX6403705
Accessory		
ASTM® Color Standards	1	ASTM03701

*The Fluid Sampling Kit (cat. no. XX6403730) contains 12 monitors. The reorder part number (cat. no. MAWP037P0) includes 50 monitors.

For more information visit: www.merckmillipore.com/ParticleMonitoring

Fluids Contamination Kit

Start-up kit for fluid contamination analysis

The Fluid Contamination Kit is a complete collection of hardware and consumables to properly equip your lab for contamination analysis. The kit conforms to standard contamination test procedures such as ARP-598 (hydraulic fluids) and federal standard 791a (lubricants, liquid fuels, and related products).

Features & Benefits

- Contains enough expendable materials for approximately 600 tests
- Includes a vacuum pump for either 115 V or 220 V electric current

Applications

Fluid Contamination Monitoring of Water, Hydraulic Fluid, Fuel Liquids and Related Fluids

Ordering Information

Description	Qty/Pk	Catalogue No.
Fluids Contamination Kit, 115 V/60 Hz	1	XX7104711K
Fluids Contamination Kit, 230 V/50 Hz	1	XX7104712
Components		
Glass Filter Holder with Stainless Steel Screen, 47 mm	1	XX1004730
Vacuum Filtering Flask, 1 L	1	XX1004705
Filter Forceps, blunt end, stainless steel	3	XX6200006P
Tubing, 1/4 in. x 23 in., latex	1	XX2504755
Solvent Filtering Dispenser, 25 mm	1	XX6602500
PetriSlides for Contamination Analysis	100*	PD1504700
Chemical Duty Pump, 115 V/60 Hz	1	WP6111560
Chemical Duty Pump, 220 V/50 Hz	1	WP6122050
Membrane Filters		
MF-Millipore™ Membrane, mixed cellulose esters, Hydrophilic, 0.45 µm, 47 mm, white, plain	100*	HAWP04700
MF-Millipore™ Membrane, mixed cellulose esters, Hydrophilic, 0.45 µm, 47 mm, white, gridded	100*	HAWG04700
MF-Millipore™ Membrane, mixed cellulose esters, Hydrophilic, 0.45 µm, 47 mm, black, gridded	100*	HABG04700
*The kit contains 400 PetriSlides and 200 of each membrane filter type. The reorder quantity is 100 per pack.		
Recommended Accessories		
Other filters available for gravimetric tests:		
MF Matched-Weight Pairs, 0.45 µm, mixed cellulose esters, 47 mm, white	50 pairs	HAWP0470M
MF Matched-Weight Pairs, 0.8 µm, mixed cellulose esters, 47 mm, white	50 pairs	AAWP0470M

For more information visit: www.merckmillipore.com/ParticleMonitoring

Patch Test Kit

In-field contamination analysis

The Patch Test Kit is a complete solution for field-based collection and analysis of hydrocarbon-based hydraulic fluids, bulk chemicals, boiler water, and lubricating oils. It allows the detection of significant changes in cleanliness through dependable, sensitive, colorimetric-based analysis.

Features & Benefits

- Contains enough expendable materials for 100 tests
- Contained within a lightweight, easy-to-carry case
- Filter color rating and particle assessment scales correspond to recognized standard contamination levels

Applications

In-Field Contamination Analysis of Hydrocarbon-Based Hydraulic Fluids, Water, Lubricating Oils and Related Products

Specifications

Materials	Stainless steel/aluminum filter holder assembly; PVC/ polyethylene sample collection, solvent dispensing bottles
Shipping Weight, kg (lb)	4.5 (9.9)

Ordering Information

Description	Qty/Pk	Catalogue No.
Patch Test Kit	1	XX6504730
Components		
Patch Test Filter Holder Assembly	1	XX6300120
Hand Vacuum Pump, stainless steel	1	XX6200035
Tubing for Vacuum, 1/8 in., fluoroelastomer	1	XX6504710
Solvent Dispensing Bottle	1	XX6504704
Swinnex® 25 mm with back-pressure screen	1	XX6504707
PVC Bottle, 120 mL	1	XX6504709
Filter Forceps, blunt end, stainless steel	3	XX6200006P
MF-Millipore™ Membrane, 5.0 µm, 47 mm, for test	100*	SMWP04700
MF-Millipore™ Membrane, 5.0 µm, 25 mm, for solvent (25 included)	100*	SMWP02500
PetriSlides for Contamination Analysis	100*	PD1504700
Naval Fluid Color Guide	1	XX6504713
*Reorder quantity Note: Kit also includes operating instructions.		
Replacement Parts		
Stainless Steel Holder Support with base	1	XX6504708
Funnel Locking Ring	1	XX2004701
Gasket, PTFE	25	XX2004703
Locking Ring Gasket, PTFE	5	XX4004714
O-ring (2-233), Buna-N	10	XX6300123

For more information visit: www.merckmillipore.com/ParticleMonitoring

High Quality Water Can Improve UHPLC Performance

Contaminating solutes may contribute to baseline variability and poor chromatographic performance when bottled water instead of freshly-delivered water is used to prepare the mobile phase (Figure 1). Use Milli-Q® water purification systems to ensure that your mobile phases are free of organic contaminants, for the best, most reproducible chromatographic results. Especially when fitted with a 0.2 µm final filter, Milli-Q® systems are the ideal water source for UHPLC, LC-MS, and other ultrasensitive analytical applications.

The effects of two different sources of water on chromatographic performance

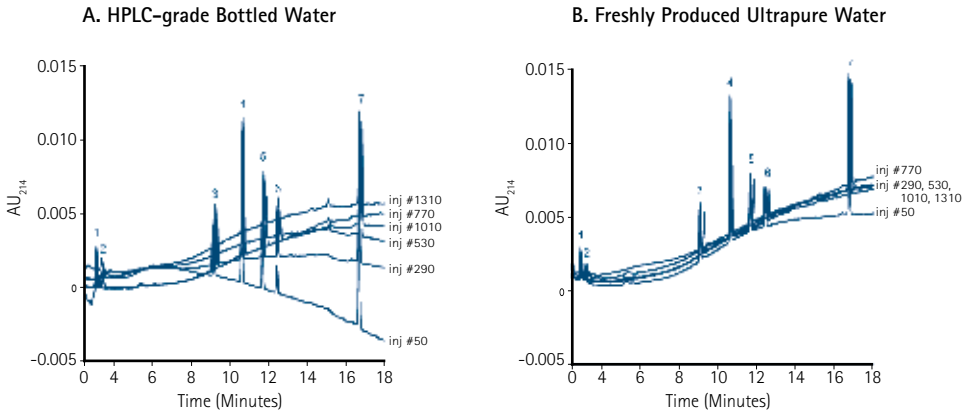

Figure 1. Two different sources of water used as solvent in the gradient elution of repeated injections of a drug mixture affect chromatographic performance over time. The solvents being compared are (A) commercially available HPLC-grade bottled water without total oxidizable carbon (TOC) specifications and (B) freshly delivered ultrapure water with a TOC level of ≤ 5 ppb. HPLC-grade acetonitrile was used as the organic solvent. Elution order: 1–acetaminophen, 2–acetazolamide, 3–phenobarbital, 4–carbamazepine, 5–phenytoin, 6–secobarbital, 7–nabumetone.

Laboratory water systems for UHPLC

Milli-Q® Integral system

The unique range of compact Milli-Q® Integral water systems uses advanced technology to provide both pure and ultrapure water from tap water, all in a single unit. Dual points of delivery (PODs) save space and increase convenience. Equipped with online TOC and resistivity monitors, the Milli-Q® Integral system gives the user total control over water quality and quantity at the point of delivery.

Description	Cat. No.
Milli-Q® Integral 15 Pure (15 L/hour) and Ultrapure (2 L/min) Water Production Unit with built-in resistivity and TOC meter designed for USP suitability test	ZRXQ015T0*

Milli-Q® Advantage A10 system

Using an optimized purification sequence, the Milli-Q® Advantage A10 water purification system converts pure water to ultrapure water, then delivers it to a POD, which provides final polishing adapted to your specific needs.

Description	Cat. No.
Milli-Q® Advantage A10 Ultrapure Water Purification System	Z00Q0V0WW*

Bio-Pak® polisher: designed for advanced life science techniques

The BioPak® unit is a disposable ultrafiltration cartridge designed for installation at the outlet of Type 1 water purification systems and is typically used in cell culture, biochemistry or molecular biology applications

Description	Cat. No.
Bio-Pak® Ultrafiltration Cartridge	CDUFBI001

*Contact your local sales representative for a country-specific part number.