Whatman™ 25mm GD/XP syringe filters

Product Information

Introduction

Important

Read these instructions carefully before using the products.

Intended use

The products are intended for research use only, and shall not be used in any clinical or *in vitro* procedures for diagnostic purposes.

Safety

For use and handling of the products in a safe way, refer to the Safety Data Sheets.

Background

The Whatman™ 25mm GD/XP syringe filters are designed to prepare and enhance the inorganic ion analysis of hard-to-filter samples greater than 10 mL. They are available in a wide variety of filter choices with a polypropylene housing and utilize advanced construction methods and design features.

Each unit contains a prefiltration stack of polypropylene prefilters. This Prefiltration Technology allows you to filter difficult samples with reduced hand force.

Disposable filtration devices provide labor saving efficiency while ensuring consistent filter performance when compared to hand assembled reusable filter housings.

This document provides general information on the products listed below. The specifications in the Technical Data section are intended to provide a basis for establishing functional use, as well as for setting quality assurance test performance levels.

Whatman 25mm GD/XP syringe filters

Whatman 25mm GD/XP syringe filters are designed to prepare and enhance the inorganic ion analysis of hard-to-filter samples greater than 10 mL.

Filter Media	Typical Application
dp PP	High flow and loading capacity aqueous and organic samples
NYL	Aqueous and/or organic samples; hydrophilic
PES	Aqueous based samples; low protein binding
PTFE	Organic based samples. Hydrophobic membrane
PVDF	Aqueous and/or organic based samples; low protein binding membrane

Polypropylene Depth Prefilter Considerations:

Compatible with aqueous and/or organic samples, the depth prefilter stack of polypropylene media, gives extremely high loading capacity, fast flow rates and larger sample volume throughout.

Nylon Membrane (NYL) Considerations:

Nylon membrane is hydrophilic and is a good choice for aqueous and/or aqueous organic samples. The membrane offers good chemical resistance to most common HPLC solvents, however it has limited resistance to acids, bases, halogenated hydrocarbons, aldehydes and strong oxidizing agents. The most common application is HPLC sample filtration.

Polyethersulfone (PES) Membrane Considerations:

This carefully selected Polyethersulfone membrane meets the special filtration requirements of durability, high temperature resistance, good chemical compatibility, and low protein adsorption. It is particularly suitable for filtration of serum, plasma and tissue culture solutions as well as other protein containing solutions where minimal adsorptive protein loss is desired.

Polypropylene Depth Filter (dpPP) Considerations:

This highly retentive polypropylene medium gives excellent flow rates and is compatible with both organic and aqueous samples. Together with polypropylene prefiltration stack it provides a pure, single material construction filter device, with a broad range of solvent/chemical resistance.

Polytetrafluoroethylene (PTFE) Membrane Considerations:

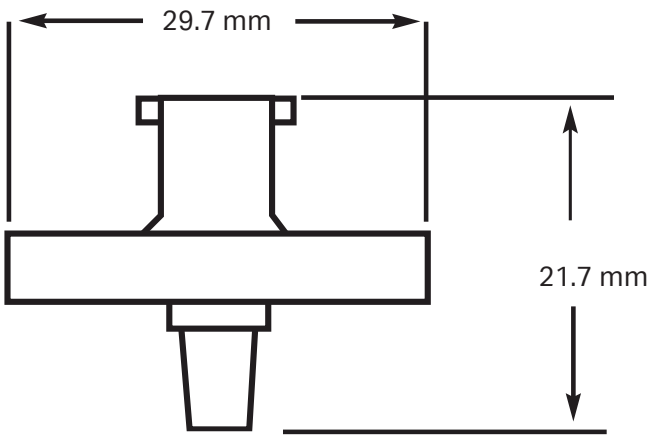
Polytetrafluoroethylene membrane is hydrophobic and will not allow water to pass without high pressures. Aqueous solutions may be filtered if the membrane is initially "wetted" with alcohol or another appropriate solvent. Polytetrafluoroethylene membrane will stop aqueous aerosols in gas streams.

Polyvinylidene Fluoride (PVDF) Membrane Considerations:

Polyvinylidene Fluoride membrane is a suitable choice for most HPLC Sample Prep applications. The membrane is slightly hydrophobic with low water breakthrough values. It offers good chemical resistance to common HPLC solvents, has low protein binding and negligible extractables.

Technical Data

Whatman 25mm GD/XP syringe filters



Dimensions:	21.7 mm × 29.7 mm
Weight:	Approximately 3 grams
Filtration Area:	4.6 cm^2
Maximum Pressure:	75 psi
Housing:	Polypropylene
Volume "Hold Up"	Full housing 1.4 mL with air purge 250 µL (approx)
Flow Direction:	Flow should enter from the inlet
Connectors:	Inlet - Female Luer Lock (FLL) Outlet - Male Slip Luer (MSL)
Autoclaving:	Autoclave at 121°C (131°C max) at 15 psi for 20 minutes (Not recommended for Nylon)
Filter Media:	See chart below

Integrity Test Data

Description	Pore size (µm)	Minimum bubble point (psi)
dp Polypropylene (dp PP)	0.45	2.4
Nylon (NYL)	0.45	21
Polyethersulfone (PES)	0.45	22
Polytetrafluoroethylene[1] (PTFE)	0.45	8.5
Polyvinylidene Fluoride (PVDF)	0.45	28

[1] Bubble point determined with IPA. All others determined with water.

Chemical Compatibility of Membrane

Solvent	DpPP	NYL	PES	PTFE[1]	PVDF
Acetic Acid 5%	R	R	R	R	R
Acetic Acid, Glacial	R	LR	R	R	R
Acetone	R	R	NR	R	NR
Acetonitrile	R	R	NR	R	R
Ammonia, 6N	R	R	R	R	LR
Amyl Acetate	R	R	LR	R	LR
Amyl Alcohol	R	R	NR	R	R
Benzene[2]	NR	LR	R	R	R
Benzyl Alcohol[2]	R	LR	NR	R	R
Boric Acid	R	LR		R	R
Butyl Alcohol	R	R	R	R	R
Butyl Chloride[2]	NR	NR		R	R
Carbon Tetrachloride[2]	NR	LR	NR	R	R
Chloroform[2]	LR	NR	NR	R	R
Chlorobenzene[2]		NR	NR	R	R
Citric Acid		LR	R	R	R
Cresol[2]	NR	NR	NR	R	NR
Cyclohexanone	R	NR	NR	R	R
Cyclohexane[2]	NR	NR	NR	R	R
Diethyl Acetamide	R	R		R	NR
Dimethyl Formamide	R	R	NR	R	NR
Dioxane	R	R	LR	R	LR
DMSO	R	R	NR	R	LR
Ethanol	R	R	R	R	R
Ethers[2]	NR	R	R	R	LR
Ethyl Acetate	R	R	NR	R	NR
Ethylene Glycol	R	R	R	R	R
Formaldehyde[2]	LR	R	R	R	R
Freon TF[2]	NR	NR	R	R	R
Formic Acid	R	NR	R	R	R
Hexane	R	R	R	R	R
Hydrochloric Acid (Conc)[2]	LR	NR	R	R	R
Hydrofluoric Acid[2]	LR	NR		R	R
Isobutyl Alcohol	R	R		R	R
Isopropyl Acetate	R	R		R	R
Methanol	R	R	R	R	R
Methyl Ethyl Ketone	R	R	NR	R	NR
Methylene Chloride[2]	LR	NR	NR	R	R
Nitric Acid (Conc)[2]	NR	NR	NR	R	R
Nitric Acid, 6N[2]	LR	NR	LR	R	R
Nitrobenzene[2]	R	LR	NR	R	R
Pentane[2]	NR	R	R	R	R
Perchloro Ethylene[2]	NR	LR	NR	R	R
Phenol (0.5%)	R	NR	NR	R	R
Pyridine	R	LR	NR	R	NR
Sodium Hydroxide, 6N	R	LR	R	R	NR
Sulfuric Acid (Conc)[2]	NR	NR	NR	R	NR
Tetrahydrofuran[2]	LR	R	NR	R	R
Toluene[2]	LR	LR	NR	R	R
Trichloroethane[2]	LR	LR	NR	R	R
Trichloroethylene[2]	LR	NR	NR	R	R
Water	R	R	R	R	R
Xylene[2]	LR	LR	LR	R	R

[1] membrane may need pre-wetting with isopropanol/methanol if filtering a polar liquid

[2] Short term resistance of housing

(R = Resistant; LR = Limited Resistance; NR = Non Resistant).

Operating Instructions

Safety: When considering the special factors of your application, consult the Technical Data to determine correctness of use. Do not exceed the pressure, temperature or chemical compatibility recommendations. High pressures can be obtained when using syringes. The smaller the syringe the higher the pressure that can be generated. As a general guide, the following pressures can be obtained by hand with the syringes indicated: 20 mL; 80 psi; 10 mL, 140 psi; 5 mL, 180 psi; 3 mL, 200 psi; 1 mL, 250 psi. Each user should determine the pressure they can generate by hand with a specific size syringe and take appropriate safety precautions not to exceed the recommended rating for the device used. If these limitations are exceeded, bursting of the device may occur resulting in loss of sample or personal injury.

Pre-Filter Media: The Whatman 25mm GD/XP syringe filters contain a prefiltration stack of proprietary polypropylene prefilters. The first prefilter is rated at approximately 10 µm while the second is rated at approximately 5 µm. Whatman Prefiltration Technology allows you to filter even the most difficult samples with less hand force than ever before possible. Compared to an unprotected membrane, the volume of sample filtered can be three to seven times greater.

Efficiency: To maximize filtration throughput, use the largest pore size filter that will provide the required cleanliness. To extend filter life use low flow rates or pressures.

To use with a syringe:

Step	Action
1	Fill the syringe with the solution to be filtered.
2	Secure the filled syringe to the FLL inlet of the syringe filter with a twisting motion.
3	With the outlet pointed upward, gradually apply thumb pressure to the syringe plunger to initiate flow.
4	Continue thumb pressure until all the air in the device is displaced with liquid.
5	Once liquid starts to exit syringe filter outlet, stop applying pressure, point the device downward and away from user
6	Position syringe filter over suitable collection container or other apparatus and apply pressure again to filter sample. Change filters when flow becomes too slow or resistance becomes excessive.

Air Locks: Seriously hamper flow rates. To eliminate, point the outlet of the filter device upward during the initiation of liquid flow.

Bubble Point (BP) Test: Flush the filter device with 1.0 mL or more of the test fluid. After the filter is completely wet and with the outlet pointed upward, apply air under controlled pressure to the inlet until air breaks through the filter and bubbles can be seen exiting the outlet. The pressure at which air passes through the wetted filter is the BP. Refer to table for typical BP values.

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Product code	Description	Qty/Box
6970-2504	0.45 µm NYL	150
6971-2504	0.45 µm NYL	1500
6972-2504	0.45 µm PVDF	150
6973-2504	0.45 µm PVDF	1500
6974-2504	0.45 µm PTFE	150
6993-2504	0.45 µm dp PP	1500
6994-2504	0.45 µm PES	150
6995-2504	0.45 µm PES	1500

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