

# Whatman Polycap PES

## Product Information sheet

### Introduction

#### About

Aqueous Solution Filter, Tissue Culture Solutions, Other Biologically Sensitive Filtration Applications, and High Quality Water.

• Sterile • Disposable • Biosafe • Non-Pyrogenic • Non-Protein Binding Polyethersulfone Membrane

#### 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.

#### Description

The Polycap PES disposable capsules combines state of the art materials and design engineering to give you the finest in safe and efficient filtration for critical Solutions.

**PES (Polyethersulfone) Final Filter:** This microporous membrane is inherently hydrophilic, has low extractables, is Biosafe and has excellent flow rates. PES is the lowest Protein Binding of all hydrophilic membranes.

**Prefilter:** Polycap PES Capsules have two layers of PES media. The first layer acts as a prefilter to ensure long life and high efficiency.

**Support Systems:** Polypropylene (drain screen, core, end caps, and back pressure support). This rugged material was chosen for its outstanding record of biocompatibility and stability.

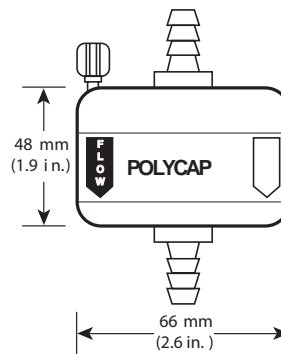
**Sealing:** All bonds are fused. No glues, adhesive, metals, epoxies or other extraneous materials are used in Polycap PES.

- HIMA Challenge Test - 0.2 µm meet the requirements of the HIMA Challenge Test for Sterilizing Grade Filters.
- Ultra Clean - No surfactants or mold release are used in these devices.
- Integrity Testable - Bubble Point, Pressure Decay, and Forward Flow.
- Compact Efficient Design - Provides high Effective Filtration Area in a small size.
- Rugged Construction - Housing rated at 4.1 bar (60 psi).
- Product ID, Serial Number, and Lot No. - Stamped into each housing.
- Protected Outlet - Blue protective outlet sheath makes the outlet side of Polycap PES a sterile chamber by preventing touch contamination. Filling Bell on outlet also protects some capsules.

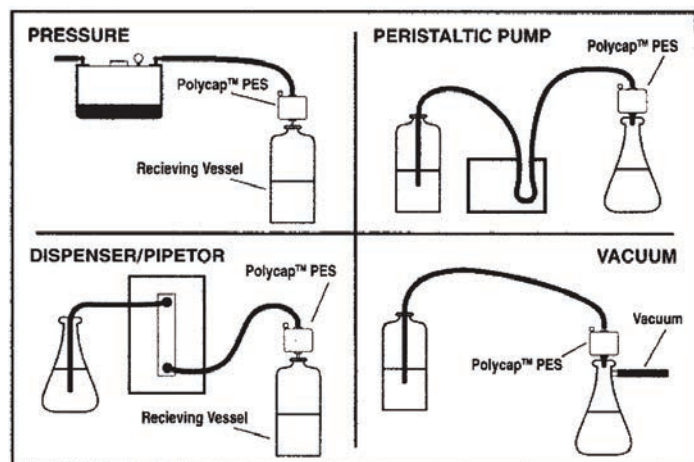
- Clean Room Facilities - Manufactured in controlled clean room facilities.
- Connections - 1/4-3/8".

### Typical Applications Polycap PES

- Tissue Culture Media
- Reagent Preparation
- Virus Suspensions
- Cleaning/Rinsing Solutions
- Particle Counting Solutions
- High Quality Water
- Enzymes
- Biologicals
- Immunologicals
- Salt Solutions
- Buffers
- Nutrients



## Filtration Systems Using Polycap PES



## Operating Instructions

### Safety

Considering the special factors of your application, consult [Table 2, on page 3](#) to determine appropriate use. A Key safety concern is not to exceed the pressure, temperature, or chemical compatibility recommendations.

### Membrane Considerations

Used in Polycap PES is polyethersulfone. This naturally hydrophilic membrane is recommended for most aqueous solutions. It provides high flow rates and throughput. (It is not suitable for aggressive chemicals. For these applications, Arbor tech recommends Polycap TF).

The special membrane in Polycap PES is hydrophilic. A hydrophilic membrane passes gas easily until it is wet. Once it has been "wetted" it will not pass gas easily. The pressure required to pass gas through a wetted membrane is dependent on the membrane's pore size. This pressure is called the "bubble point" and is used to test for membrane integrity. Air trapped on the upstream side of a wetted hydrophilic membrane blocks the flow path and reduces or stops flow. (see Air Lock paragraph in Filtration Installations).

### Efficiency

To maximize filtration throughput, use the largest pore size filter that will provide the required cleanliness. For sterilization of liquids, 0.2  $\mu\text{m}$  is required. If the material to be filtered is heavily contaminated, consider prefilters. To extend filter life use low flow and/or low pressure.

### Sterilization

Polycap PES is radiation sterilized. It may be autoclaved once at 121°C (132°C MAX) for 20 minutes. However, an integrity test should be performed following autoclaving.

### Filtration Installations

Small volumes may be filtered using a syringe; larger volumes may be filtered by connecting a hose to the outlet of a pressure vessel, or "in line" using gravity or a peristaltic pump for the pressure required to filter.

Air Locks seriously hamper flow rates. To eliminate air locks during the initiation of flow, use low pressure (5 psi/ 0.5 bar), bleed off air with vent, and then increase pressure and flow. The air in the system and filter device must be flushed prior to the filter being wetted (Use the manual vent to exhaust trapped air).

Because of the design and testing of Polycap PES it is not normally required to test these products prior to use. It may be required because of a protocol, special application, use of special solutions, or if the units are autoclaved.

### Integrity Testing: Bubble Point (BP) Test

Flush the filter device with an appropriate aqueous solution. After the membrane is completely wetted, apply air under controlled pressure until air breaks through the membrane and bubbles from the outlet connector. The pressure at which air passes through the "wetted" membrane is the "bubble point". Refer to [Table 1, on page 2](#) for pore size and BP values. The test is conducted with outlet connector pointed downward.

### Diffusional Flow


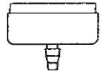
This and other similar tests may be used to test integrity. Follow test equipment instructions.

### Special Notes

- The multiple layers of filter material in Polycap PES can inhibit the membrane from being completely "wetted", causing a false low value in the bubble point test. Following steps 2 & 3 should aid in this situation.
- When flushing capsules prior to BP test, use low pressures (5 psi/ 0.3 bar), bleed off air with vent, and then increase pressure and flow.
- If a lower than normal BP is obtained, re-wet using warm water [175°F (79°C)] and let capsule stand, or wet out the capsule with alcohol. Flush again with two liters of water, and repeat the BP procedure.
- WET filters will autoclave more reliably.
- Filtering at low pressures maximizes throughput.

## Product Guide

**Table 1.** Polycap PES 36 mm

Pore Size	Capsule Size	Polycap PES (sterile) Inlet Fittings 2642	Polycap PES (sterile) Outlet Fittings 2642
0.2 $\mu\text{m}$	2642 Polycap 36 PES	 1/4–3/8" (6–9 mm) Stepped Hose Barb	 1/4–3/8" (6–9 mm) Stepped Hose Barb

**Table 2.**

Housing	Polypropylene.		
Vent	On Inlet.		
Prefilter	PES (Polyethersulfone).		
Membrane	PES (Polyethersulfone).		
Support System	Polypropylene.		
Sealing system	Heat fused. No glues, metals, or epoxies are used to manufacture these capsules.		
Maximum Pressure	60 psi (4.1 bar).		
Flow direction	Supported bi-directionally; the prefilter is on the inlet side and flow should follow arrows.		
Non pyrogenic:	LAL Tested, Non Reactive.		
Biosafe	Materials pass USP Class VI.		
Filtration Area: (nominal)	Polycap 36 0.5 ft. <sup>2</sup>		
Alcohol Bubble Point:	Pore Size	In Water	In IPA
	0.2 µm	40 psi (2.7 bar)	16 psi (1.1 bar)
Sterilization:	These filter devices may be autoclaved at 121°C (132°F) for 20 minutes. However, an integrity test should be performed following autoclaving. Some of these products have been sterilized by gamma radiation prior to shipping.		
Hold-up Volume	Polycap 36, 70 ml. An air purge will minimize solution hold up to a few mLs.		

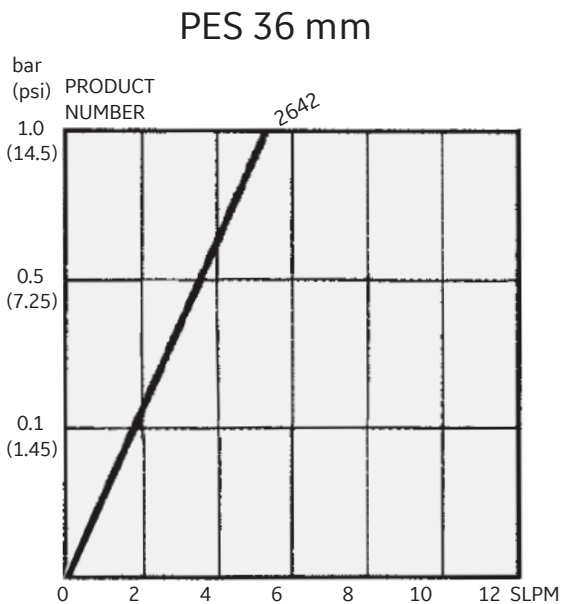
## Chemical resistance summary

**Table 3.** Polycap PES is designed principally for Aqueous Solutions

Classes of Substances 20°C (68°F)	Polypropylene/PES Guide <sup>1</sup> for use
Acids, dilute	Usable
Acids, concentrated	Not usable
Alcohols (selected)	Usable
Aldehydes	Not usable
Bases	Usable
Esters	Short term use
Hydrocarbons, aromatic	Not usable
Hydrocarbons, halogenated (selected)	Short term use
Ketones	Not usable

<sup>1</sup> Published as a general guide only. Due to time, temperature, and stress variations the user must evaluate the specific product and application to determine the appropriate use.

## Typical Flow Rates In Water, Polycap PES



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