

# Microcap™ PPES

Pharmaceutical Grade Polyethersulfone Pleated Membrane Capsules



Microcap<sup>TM</sup> PPES capsules are used for sterile filtration in the most critical pharmaceutical applications, such as: sterilising filtration of USP Water for Injection (WFI), diagnostic solutions, vaccines, ophthalmics, SVPs, LVPs and biological products.

Our hydrophilic, double-layered polyethersulfone membrane filters exhibit excellent flow rates with high throughput, thereby ensuring optimum protection.

Polyethersulfone (PES) is particularly suited for the filtration of products which contain elements that can adsorb to the media, such as preservatives and proteins. The lower binding characteristics of PES make it a good choice for the filtration of valuable protein solutions such as vaccines and biologicals as well as ophthalmic solutions.

 $\mathsf{Microcap}^\mathsf{TM}$  PPES capsule elements are 100% integrity tested during production.

# Ophthalmics Features and Benefits

Typical Applications

Diagnostics

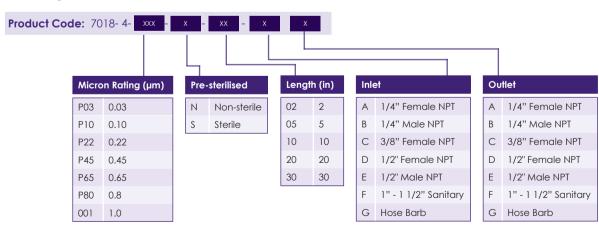
Vaccines

WFI water

LVPs and SVPs Biologicals

- Validated for use in multiple pharmaceutical applications.
- Excellent flow rates with high throughput.
- Integrity testable.
- Designed for minimal leachables and extractables.
- Low adsorption of proteins and preservatives.
- USP Class VI approved.
- Uses FDA compliant materials.

## **Ordering Information**



### **Specifications**

#### **Materials of Manufacture**

Housing: Polypropylene
Filtration media: Double layered
polyethersulfone

(PES) membrane

Media support: Polypropylene
End caps: Polypropylene
Centre core: Polypropylene
Outer support cage: Polypropylene
Sealing method: Thermal bonding

#### Sanitisation/Sterilisation

Autoclave: 121°C (250°F), 30 min, 5+

cycles.

Chemical sanitisation: Industry standard

concentrations of hydrogen peroxide, peracetic acid, sodium hypochlorite and other selected chemicals.

Note: PPES capsules are not

designed for steam-in-

place (SIP)

Pre-Sterilised: PPES capsules are

offered in both non- and pre-sterilised forms.

#### **Integrity Test Specifications - Diffusion**

Pore size	Test pressure (psi)	Max Diffusive Flow (cc/min - water wetted membrane)					
(µm)		2"	5"	10"	20"	30"	
0.03	60	2.1	6.3	15	30	45	
0.10	48	2.1	6.3	15	30	45	
0.22	35	2.1	6.3	15	30	45	
0.45	20	2.1	6.3	15	30	45	
0.65	15	2.1	6.3	15	30	45	
0.8	12	2.1	6.3	15	30	45	
1.0	8	2.1	6.3	15	30	45	

#### **Maximum Operating Parameters**

Liquid operational pressure: 5.5bar (80psi) at 20°C

(68°F)

Gases operational pressure: 4.1bar (60psi) at 20°C

(68°F)

Operating temperature: 43°C (110°F) at 2.1bar

(30psi) in water

Reverse differential pressure: 3.4bar (50 psi) at 20°C

(68 °F)

Recommended changeout

pressure: 2.4bar (35psi)

#### **Filtration Area**

Media	Capsule length					
	2"	5"	10"	20"	30"	
PPES Membrane	1.0ft <sup>2</sup> (0.09m <sup>2</sup> )	2.9ft <sup>2</sup> (0.27m <sup>2</sup> )	6.1ft <sup>2</sup> (0.57m <sup>2</sup> )	12.2ft <sup>2</sup> (1.13m <sup>2</sup> )	18.3ft² (1.70m²)	

#### Flow Rate

The following table represents typical water flow at a 69mbar (one psi) pressure differential across a single 2 inch capsule with 1.0ft² (0.09m²) of media with 1/2" FNPT ports. The test fluid is water at ambient temperature. Higher pressure drops are acceptable, but as flows increase the pressure drop of the housing becomes more apparent.

Pore size (µm)	0.03	0.10	0.22	0.45	0.65	8.0	1.0
GPM	0.16	0.26	0.46	0.71	0.86	0.91	0.97
LPM	0.61	0.98	1.74	2.69	3.26	3.44	3.67

#### **Validation**

Microcap<sup>TM</sup> PPES capsules are validated using test procedures that comply with ASTM F838-15 protocols for the determination of bacterial retention in liquids. The challenge level is a minimum of  $10^7$  organisms per cm² of filter media. Capsules have > 7-log removal when challenge with the organisms listed below.

0.03µm: Acholeplasma laidlawii 0.10µm: Brevundimonas diminuta 0.22µm: Brevundimonas diminuta 0.45µm: Serratia marcescens 0.65µm: Saccharomyces cerevisiae

Validation Guide available upon request.

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