porvair filtration group

Microcap™ PPES

Pharmaceutical Grade Polyethersulfone Pleated Membrane Capsules

Microcap™ 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.

Microcap™ PPES capsule elements are 100% integrity tested during production.

Typical Applications

- Diagnostics
- Vaccines
- LVPs and SVPs
- Biologicals
- WFI water
- Ophthalmics

Features and Benefits

- 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

Product Code: 7018- 4- [xxx] - [x] - [xx] - [x] [x]

Micron Rating (µm)	
P03	0.03
P10	0.10
P22	0.22
P45	0.45
P65	0.65
P80	0.8
001	1.0

Pre-sterilised	
N	Non-sterile
S	Sterile

Length (in)	
02	2
05	5
10	10
20	20
30	30

Inlet	
A	1/4" Female NPT
B	1/4" Male NPT
C	3/8" Female NPT
D	1/2" Female NPT
E	1/2" Male NPT
F	1" - 1 1/2" Sanitary
G	Hose Barb

Outlet	
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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 (µm)	Test pressure (psi)	Max Diffusive Flow (cc/min - water wetted membrane)				
		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	1.0ft² (0.09m²)	2.9ft² (0.27m²)	6.1ft² (0.57m²)	12.2ft² (1.13m²)	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	0.8	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™ 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 cm^2 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.

PFG772/Rev3/Nov24

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