



## Supor® EX Grade ECV Membrane Filter Cartridges

### Description

Supor EX grade ECV filters are high capacity, high flow rate sterilizing grade filters designed for filtration of a broad range of liquids in bioprocessing. A unique highly asymmetric polyethersulfone (PES) membrane layer makes Supor EX grade ECV filters ideal for filtration of cell harvest material, process intermediates, growth media, buffers and final bulk biological process fluids.

Pall's AB-style filters are replaceable cartridges sized for medium-to-large-scale manufacturing operations (100 L to > 1000 L). They feature a double 226 O-ring (Pall Code 7) adaptor as for use with standard "Code 7" sanitary stainless steel housing assemblies.

Supor EX grade ECV filters are also available in the Pall Kleenpak™ Nova filter capsule format.



### Key Features and Benefits

- ▶ Asymmetric PES membrane for excellent flow rates and high capacity per unit membrane area
- ▶ Laid-over pleat filter construction with narrow core design maximizes available area per cartridge (1.04 m<sup>2</sup>) for high device throughputs
- ▶ Low protein and preservative binding
- ▶ Fluid compatibility over a broad pH range for use in multiple applications
- ▶ 2D data matrix marking for electronic traceability using a hand-held scanner

### Quality Standards

A Certificate of Test provided with every filter documents the following:

- ▶ Filters are manufactured in a controlled environment
- ▶ Filter elements are manufactured for use in conformance with cGMP
- ▶ Filters' materials of construction meet USP Biological Reactivity Test in vivo for Class VI-121 °C plastics
- ▶ Q.C. lot release tests
  - Fabrication Integrity - each filter has successfully passed a Forward Flow integrity test correlated to bacterial retention per modified ASTM F838-05
  - Lot sample bacterial retention tests with *Brevundimonas diminuta* (ATCC 19146) at a challenge level of 10<sup>7</sup> CFU/cm<sup>2</sup>
  - Effluent quality for cleanliness, TOC and water conductivity, pH and pyrogens per USP standard methods

Products in this datasheet may be covered by one or more patents including:

- ▶ EP 0 667 800
- ▶ EP 0 982 061
- ▶ EP 1 380 331
- ▶ US 5,543,047
- ▶ US 5,690,765
- ▶ US 5,725,784
- ▶ US 6,113,784
- ▶ US 7,083,564
- ▶ US 7,318,800

### Specifications

#### Materials Of Construction

Filter Membrane	Dual Layer PES membrane
Support/Drainage	Polypropylene
Core/End Caps/ Fin/Adaptor	Polypropylene
Cage	Polypropylene with TiO <sub>2</sub> whitener <sup>1</sup>

O-rings	Silicone elastomer
Sealing Technology	Thermal bonding without adhesives

<sup>1</sup>  $TiO_2$  is an insoluble inorganic mineral filler that does not contribute to organic extractables

## Operating Parameters<sup>2</sup>

Maximum Differential Pressure (Forward Direction)	5.0 bar (72.5 psi) at 40 °C 3.0 bar (43.5 psi) at 80 °C
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<sup>2</sup> In compatible fluids which do not soften, swell or adversely affect the filter or its materials of construction

## Sterilization

Autoclave	5 x 60 minute cycles at 125°C
In Situ Steam <sup>3</sup>	5 x 60 minute cycles at 125°C 1 x 60 minute cycle at 135°C

<sup>3</sup> Maximum differential pressure 300 mbar in forward direction

## Typical Non Volatile Residue (NVR) Extractables in Water at 20°C<sup>4</sup>

< 150 mg NVR after 24 hours extraction (per 10 in. cartridge)

<sup>4</sup> Tested on elements without pre-flushing after one 60 minute autoclave cycle at 125°C

## Nominal Effective Filter Area (EFA)

1.04 m<sup>2</sup> per 254 mm cartridge (11.2 ft<sup>2</sup> per 10 in. cartridge)

## Integrity Test Values (Air test gas, water wet)\*\*

Values for 10 in. cartridge at 20°C	
Max. allowable Forward Flow (air test gas)	21 mL/min at 2760 mbar (40 psi)

\*\* Contact Pall for multi-element integrity test values or other fluid values and recommended test procedures

## Flow Rates

Typically 17 L/min @ 100 mbar

## Ordering Information

Item	Nominal Length	Part Number
Supor® EX grade ECV Membrane Filter Cartridge <i>Pall Code 7 double O-ring (silicone elastomer), bayonet lock* and fin</i>	254 mm (10 in.)	AB1UECV7PH4
Supor EX grade ECV Membrane Filter Cartridge <i>Pall Code 7 double O-ring (silicone elastomer), bayonet lock* and fin</i>	508 mm (20 in.)	AB2UECV7PH4
Supor EX grade ECV Membrane Filter Cartridge <i>Pall Code 7 double O-ring (silicone elastomer), bayonet lock* and fin</i>	762 mm (30 in.)	AB3UECV7PH4

\* Please contact Pall for availability of product with alternative adaptor fittings and o-ring materials

## Contact Information

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