

# Polyethersulfone Ultrafiltration Cassettes

Protein Purification,  
Concentration and  
Diafiltration



white silicone

## Description

### The Polyethersulfone Membrane

The polyethersulfone membrane (PESU) is a membrane polymer that is well established in the biotechnological and pharmaceutical industries. The PESU membrane is a stable polymer that features a broad pH and temperature range. Membrane regeneration, storage and depyrogenation can be accomplished by using NaOH even at elevated temperatures. Because of these features, the PESU membrane is ideally suited for biotechnological applications. Polyethersulfone membranes are designed for use in the biotechnological and pharmaceutical industries.

They can be used for the following applications:

- IgG
- Blood factors
- Enzymes
- Peptides

## Product Information

The polyethersulfone membrane has minimal adsorption of proteins, viruses, etc. Membrane retention is unaffected by repeated re-use.

Feature	Benefits
Low adsorption	Minimal loss of proteins
Low protein-binding	High product yield
Wide pH and a wide variety of temperature range	Chemicals can be used for the removal of foulants
High flow rates	Economical filtration runs
Self sealing cassette	No gaskets needed
Silicone sealing compound	No glue
Enlarged inlet and outlet hole	Lower pressure drop

## Technical Data

### Specifications

Materials of Construction	
Membrane	Polyethersulfone
Gaskets	PVDF
Spacer	Polypropylene
Sealing compound	Silicone white

### Pore Size | Retention Rate

PESU ultrafiltration cassettes are available in a choice of the following nominal molecular weight cut offs: 1 kD, 5 kD, 8 kD, 10 kD, 30 kD, 50 kD, 100 kD, 300 kD

### Available Sizes

Sartorius crossflow cassettes are available in **Standard cassette** size for pilot- | production scale and in **Sartocon® Slice** format for reduced volume handling.

### Available Filter Holder

Sartorius crossflow cassettes are designed for Sartorius filter holders like Sartocon® Slice (0.1 m<sup>2</sup> cassettes only), Sartocon®, Sartocon® 2 Plus and different Sartoflow® holder.

### Filtration Area

Filter area Sartocon® Cassette	0.7 m <sup>2</sup>
Filter area Sartocon® Slice Cassette	0.1 m <sup>2</sup>

## Operating Parameters

Feed pressure, P <sub>in</sub>	58 psi   4 bar maximum
Operating temperature	50°C maximum
Air diffusion rates at P <sub>in</sub> = 15 psi   1 bar	1 k-300 kD: 50 ml air/min for 0.7 m <sup>2</sup> filter area   15 ml air/min for 0.1 m <sup>2</sup> filter area
Cleaning	NaOH, 1 M; 40°C
Disinfection	NaOH, 1 M, max. 50°C, 30 min
Storage	NaOH, 0.1 M

## Thermal Sterilization

t.b.d.

## Regulatory Compliance

All materials have passed the USP Biological Test. The filtrate meets or exceeds the currently valid USP and EP for sterile Water for Injection, with respect to particulate matter, extractable substances, oxidizable substances, pH dependent maximum conductivity, Ammonia, Chloride, Sulfate, Calcium and Bacteria Endotoxins.

## Retention Rates Polyethersulfone

Substance	Approx. Mol Wt.	1 kD [%]	5 kD [%]	8 kD [%]	10 kD [%]	PESU <sub>max</sub> kD [%]	30 kD [%]	50 kD [%]	100 kD [%]	300 kD [%]
Vitamin B12	1,200	>70	50-80	-	-	-	-	-	-	-
Cytocrome C	12,400	-	-	99	>95	-	60-90	-	-	-
Albumin	67,000	-	-	-	-	>99.9	-	>95	<80	-
γ-Globulin	169,000	-	-	-	-	-	-	>99	≥98	<70
Dextran	2,000,000	-	-	-	-	-	-	-	-	>95

## Quality Control

Each filter cassette is individually assigned a serial number, integrity tested and certified.

It complies with cGMP requirements for non-fiber-releasing filters and is filed under the Drug Master File Number DMF 5967 by the Food and Drug Administration, Washington, DC. Validation information is available upon request.

If you use holding devices from other suppliers, please contact our Applications Department. A different torque might be needed due to specific variations in design.

For further assistance, please contact your local Sartorius Stedim Biotech field engineer or our Goettingen- based Applications Department in Germany.

## Technical References:

Validation Guide

Publication No.: SPC5705-e

Directions for Use (Sartocon® Cassettes and Sartocon® Slice Cassettes) Publication No.: SPC6019-a

# Average Dynamic Water Flux

Permeate flow rate  $P_{in} = 2$  bar,  $P_{ret} = 0.5$  bar,  $P_{filtrate} =$  open

Cut off   Pore size	Polyethersulfone l/h/m <sup>2</sup>
1 kD	13
5 kD	42
8 kD	220
10 kD	300
30 kD	610
50 kD	720
100 kD	800
300 kD	1260

## Order Information

Available types and order numbers

Cut Off   Pore Size	Sartocon® Cassettes 0.7 m <sup>2</sup> Filter Area	Sartocon® Slice Cassettes 0.1 m <sup>2</sup> Filter Area
1 kD	3021460907E--SW*	3051460901E--SW*
5 kD	3021462907E--SW*	3051462901E--SW*
8 kD	3021463407E--SW*	3051463401E--SW*
10 kD	3021463907E--SW*	3051463901E--SW*
30 kD	3021465907E--SW*	3051465901E--SW*
50 kD	3021465007E--SW*	3051465001E--SW*
100 kD	3021466807E--SW*	3051466801E--SW*
300 kD	3021467907E--SW*	3051467901E--SW*


\* For grey silicone cassettes material number ends with "...--SG"

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