

Ultrafiltration Cassettes

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. Its wide temperature range makes it possible to sterilize the membrane by either steam or autoclaving. 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. PESU ultrafiltration cassettes are available in a choice of the following nominal molecular weight cutoffs:

- 1 k
- 5 k
- 10 k
- 30 k
- 50 k
- 100 k
- 300 k

Applications

Polyethersulfone membranes are designed for use in the biotechnological and pharmaceutical industries. They can be used for the following applications:

Feature	Benefits
Low adsorption	Minimal loss of proteins
Low protein-binding	High product yield
Wide pH and temperature range	A wide variety of 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

- IgG
- Blood factors
- Enzymes
- Peptides

Product Profile

The polyethersulfone membrane has minimal adsorption of proteins, viruses, etc. Membrane retention is unaffected by repeated re-use. PESU ultrafiltration cassettes have been validated to withstand in-line steam sterilization without any loss or changes in membrane retention.

Quality Control

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

Validation

All materials have passed the USP 23 Class VI Plastics Test. The filtrate meets or exceeds USP and EP requirements for Sterile Water for Injection with respect to total solids, oxidizable substances, particulate matter, ammonia, chloride, nitrate, sulfate and heavy metals. 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.

Sartocon Cassette



Sartocon Slice Cassette



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 field engineer or our Goettingen-based Applications Department in Germany.



Technical Specifications

Cutoff:	1k, 5k, 10k, 30k, 50k, 100k, 300k
Surface area:	Sartocon cassette: 0.7 m ² filter area, Sartocon Slice cassette: 0.1 m ² filter area
Retentate pressure, P in:	58 psi (4 bar) maximum
Operating temperature:	50° C maximum
pH stability:	1–14
Air diffusion rates at P in = 15 psi (1 bar):	10 k–300 k: 50 ml air/min for 0.7 m ² filter area / 1 k + 5 k: 20 ml air/min for 0.7 m ² filter area 10 k–300 k: 15 ml air/min for 0.1 m ² filter area / 1 k + 5 k: 5 ml air/min for 0.7 m ² filter area
Sterilization:	121° C, 30 min., steaming; 121° C, 110 min., autoclaving; only 30 K/100 K/300 K
Cleaning:	P3 Ultrasil 91, (2–4%), pH 13; max. 50° C; Sodium hydroxide, 1 M; 40° C
Disinfection:	NaOH, 1 M, max. 50° C, 30 min.
Storage:	NaOH, 0.1 M

Examples of Flux for Water

Cutoff	Sartocon cassettes, 0.7 m ² filter area Permeate*	Sartocon Slice cassettes, 0.1 m ² filter area Permeate*
1 k	9 l/h	3 l/h
5 k	21 l/h	5 l/h
10 k	160 l/h	38 l/h
30 k	280 l/h	70 l/h
50 k	460 l/h	90 l/h
100 k	530 l/h	100 l/h
300 k	630 l/h	120 l/h

* (Feed pressure, P_{in} = 1,5 bar; retentate pressure, P_{out} = closed valve; P_{filtrate} = open)

Retention Coefficient

Marker:	Approx. Mol. wt	1k	5k	10k	30k	50k	100k	300k
Vitamin B12:	1.200	>70%	>50%					
Inulin:	5.000	>85%	>70%					
Cytochrome C:	12.400		>99%	>95%	>60%			
Albumin:	67.000			>99%	>98%	>75%	<60%	
Myoglobin:	17.000			>95%				
IgG:	169.000					>99%	>99%	<70%
Dextran:	2.000.000							>95%

Materials of Construction

Membrane	Polyethersulfone
Gaskets	PVDF
Spacer	Polypropylene
Sealing	compound Silicone

Available Types and Order Numbers

Cutoff	Sartocon cassettes, 0.7 m ² filter area	Sartocon Slice cassettes, 0.1 m ² filter area
1 k	3021460907E-SG	3051460901E-SG
5 k	3021462907E-SG	3051462901E-SG
10 k	3021463907E-SG	3051463901E-SG
30 k	3021465907E-SG	3051465901E-SG
50 k	3021465007E-SG	3051465001E-SG
100 k	3021466907E-SG	3051466901E-SG
300 k	3021467907E-SG	3051467901E-SG