

plasmaFlux PSu
the filter with the Fresenius Plasmasulfone Membrane
for plasmapheresis



plasmaFlux PSu – for plasmapheresis

Advances in therapeutic apheresis made over the last 30 years have coincided with the developments and improvements of membrane filtration techniques.

Therapeutic apheresis today is not just the simple substitution of the patient's plasma; additionally, the therapy involves the removal of pathological factors such as auto-antibodies, immune-complexes or toxins from the blood of the patient by filtration or adsorption.

plasmaFlux PSu filters from Fresenius Medical Care enable the elimination of a wide range of substances due to sieving coefficient of 1 for molecules with a molecular weight of up to two million dalton.

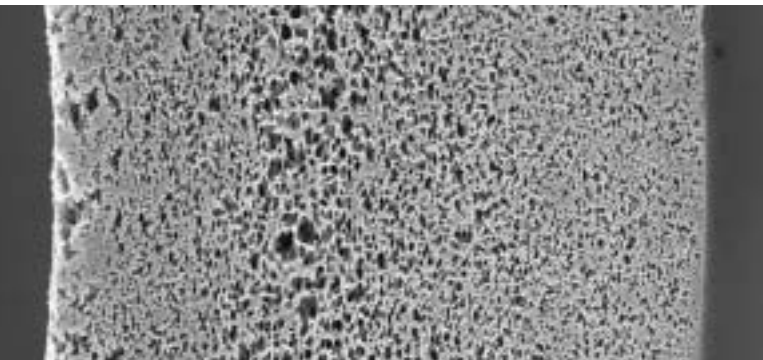


Figure 1: Scanning electron micrograph of the new Fresenius Plasmasulfone membrane

plasmaFlux PSu filters contain the new Polysulfone based Fresenius Plasmasulfone membrane (Figure 1) which facilitates the continuous separation of plasma. Its development has been based upon the extended experience of plasmaseparation procedures as well as of Polysulfone membranes in clinical practice. A high performance and biocompatibility of the primary partition filter are fundamental prerequisites for the efficient treatment of different diseases by therapeutic apheresis.

Fresenius Plasmasulfone membranes minimise the activation of the patient's immune system during blood-membrane interaction. The Fresenius Plasmasulfone membrane thus offers the acknowledged biocompatibility profile of all Fresenius Polysulfone® membranes.

Diseases treated by therapeutic apheresis

Due to a better understanding of the basic diseases and the improved technical know how, therapeutic apheresis is today a standard therapy for people suffering from the following diseases ^(1, 2):

Critical care setting

- Acute inflammatory demyelinating polyneuropathy/Guillain-Barré syndrome
- Myasthenia gravis
- Goodpasture's disease
- Thrombotic thrombocytopenic purpura/haemolytic uremic syndrome
- Acute pancreatitis due to chylomicronemia syndrome

Ambulatory care setting

- Systemic lupus erythematosus (SLE)
- Familial hypercholesterolaemia (FHC)
- Refsum's disease
- Microangiopathic thrombocytopenia (TTP/CHUS)
- Pemphigus vulgaris

New therapeutic approaches

- Sudden hearing loss
- Age-related macular degeneration
- Ischemic diabetic foot syndrome

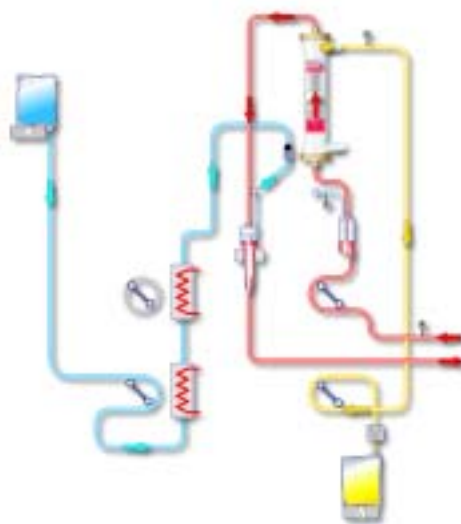


Figure 2: Flow chart of plasmapheresis therapy with the multiFiltrate (acute dialysis machine from Fresenius Medical Care)

Fresenius Plasmasulfone – a new approach

- **High Filtration Performance – at low Transmembrane Pressure**

The increased hydraulic permeability as well as the high effective surface area of the new Fresenius Plasmasulfone membrane ensure high filtration performance even at low transmembrane pressures for the entire duration of the treatment.

The excellent flow conditions within the **plasmaFlux** filters contribute to the efficient, rapid and safe exchange of plasma.

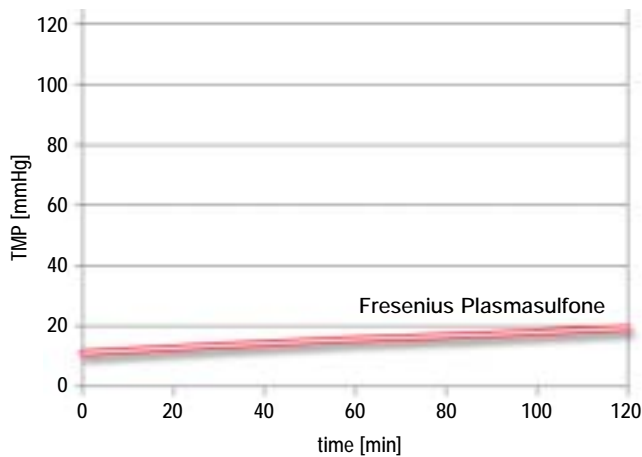


Figure 3: The TMP profile over a period of 2 h (internal investigations of Fresenius Medical Care)
 ($Q_B = 200 \text{ mL/min}$; $Q_F = 40 \text{ mL/min}$, $Hct = 41 \%$, $TP = 5,7 \%$)

- **High sieving coefficients**

for substances with high molecular weights. An efficient removal of pathological factors within the filtered plasma can only be achieved if the sieving coefficient of the toxins and immune complexes (having a molecular weight of up to two million dalton) approaches 1 (Fig 4).

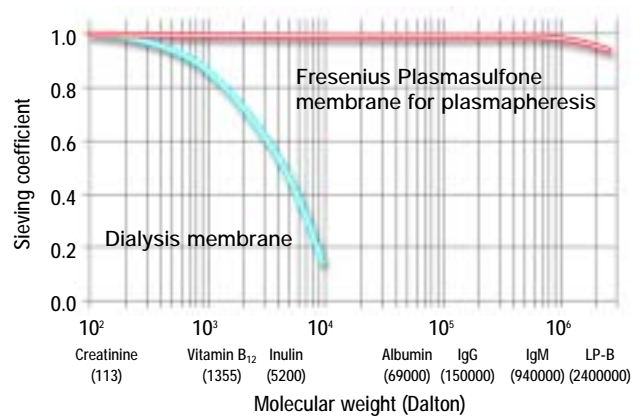


Figure 4: Sieving coefficients of membranes for dialysis and plasmapheresis

- **INLINE steam sterilisation**

ensures no sterilisation residues and is thereby eliminating potential side effects of other sterilising agents. Moreover, the reduced requirement of saline for the rinsing procedures is associated with considerable time-saving benefits.

	plasmaFlux PSu 1S	plasmaFlux PSu 2S
Performance / technical data		
Membrane material	Fresenius Plasmasulfone	Fresenius Plasmasulfone
Inner lumen/Wall thickness (µm)	340/70	340/70
Effective surface (m ²)	0.3	0.6
Sieving coefficient for molecules up to $2 \times 10^6 \text{d}$	~ 1	~ 1
Max. TMP (mm Hg)	100	100
Blood filling volume	36	70
Recommended blood flow range (mL/min)	40 – 150	80 – 250
Maximum filtrate flow	20 % of effective blood flow rate	
Sterilisation method	INLINE Steam	INLINE Steam
Art.-No.	500 4911	500 4811

Literature

1. Schuff-Werner P and Holdt B: Selective hemapheresis, an effective new approach in the therapeutic management of disorders associated with rheological impairment: Mode of action and possible clinical indications. Artif Organs 26 (2): 117-123, 2002.
2. Vitou LY: Plasmapheresis in critical care. Int J Intensive Care 8 (3): 1-5, 2001.



Fresenius Medical Care

Fresenius Medical Care Deutschland GmbH · 61346 Bad Homburg v. d. H. · Germany · Phone: +49 (0) 61 72-609-0 · Fax: +49 (0) 61 72-609-2191
E-mail: dialysis-marketing@fmc-ag.com · Head office: Else-Kröner-Straße 1 · 61352 Bad Homburg v. d. H.

www.fmc-ag.com