

ΝΤΙΑΛΜΕΝΤΙΚΑ ΑΕ

ΕΠΙΣΥΝΑΠΤΟΜΕΝΟ 1

Έδρα: ΜΑΚΕΔΟΝΙΑΣ 7, ΑΘΗΝΑ 104 33
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HEL BIO Dialyzers

Quality, Safety & Performance

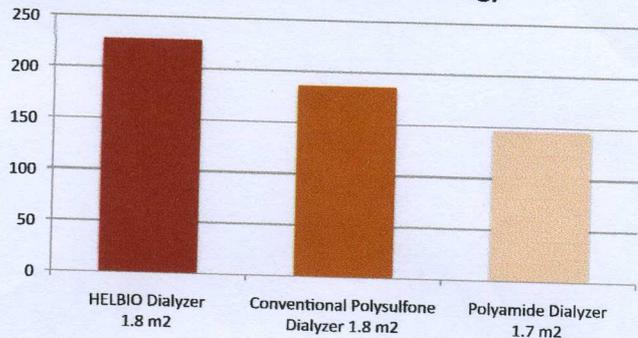


The Polyethersulfone membrane of HELBIO dialyzers is made of a revolutionary synthetic fiber, setting advanced standards in hemodialysis and representing the next generation of dialysis filters.

HELBIO dialyzers offer distinctive advantages when compared to conventional dialyzers composed of synthetic membranes, including:

- Unique polymer and pore structure provides excellent hemocompatibility and performance;
- Innovative *Performance Enhancing Technology* incorporates a multifilament spacer yarn, which helps to deliver an even flow of dialysate.
- With a high flux membrane wall thickness of 30 μm - 25% less than conventional synthetic membranes - it delivers enhanced diffusive clearance.
- It is significantly better than other synthetic membranes at removing $\beta 2$ -microglobulin.

In-vivo removal of $\beta 2$ -microglobulin
(haemodiafiltration in mg)



TREATMENT ADVANTAGES

- OPTIMUM BIOCOMPATIBILITY
- EVEN FLOW OF DIALYSATE
- IMPROVED DIFFUSIVE CLEARANCE

HELBIO Dialyzers

PRODUCT CHARACTERISTICS

- UNIQUE POLIMER COMPOURE
- MULTIFILAMENT SPACER YARN
- REDUCED MEMBRANE WALL

PATIENT BENEFITS

- ENHANCED SECURITY
- UNMATCHED TREATMENT CONSISTENCY
- SUPERIOR DIALYSIS PERFORMANCE

MANUFACTURER

SWISS QUALITY

Dialife SA

GLOBAL CARE

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HELBIO Dialyzers

Technical Sheet



LOW FLUX

TECHNICAL DATA / IN VITRO PERFORMANCE	BIO 120	BIO 140	BIO 160	BIO 180	BIO 200	BIO 220
Surface Area (m ²)	1,2	1,4	1,6	1,8	2,0	2,2
Wall Thickness (µm)	35	35	35	35	35	35
Priming Volume (ml)	71	81	88	104	112	119
Ultrafiltration Coeff. (ml/h/mmHg)	14	17	20	23	26	28
KUF per wet effective surface area of 1,0 m ² (ml/h/mmHg)	12	12	12	12	12	12
CLEARANCE 200 / 300 (ml/min)						
Urea	179 - 220	181 - 223	185 - 231	192 - 244	194 - 250	195 - 255
Creatinine	170 - 208	175 - 211	179 - 217	184 - 224	188 - 234	190 - 240
Phosphate	149 - 180	153 - 185	157 - 195	165 - 209	173 - 217	176 - 221
Vitamin B ₁₂	113 - 124	122 - 131	132 - 141	138 - 151	141 - 157	144 - 162

HIGH FLUX

TECHNICAL DATA / IN VITRO PERFORMANCE	BIO 1200	BIO 1400	BIO 1600	BIO 1800	BIO 2000	BIO 2200
Surface Area (m ²)	1,2	1,4	1,6	1,8	2,0	2,2
Wall Thickness (µm)	30	30	30	30	30	30
Priming Volume (ml)	71	81	88	104	112	119
Ultrafiltration Coeff. (ml/h/mmHg)	63	73	83	93	103	111
KUF per wet effective surface area of 1,0 m ² (ml/h/mmHg)	57	57	57	57	57	57
CLEARANCE 200 / 300 (ml/min)						
Urea	183 - 228	185 - 229	191 - 246	196 - 257	197 - 263	198 - 269
Creatinine	175 - 216	180 - 224	185 - 233	190 - 247	194 - 251	196 - 256
Phosphate	158 - 191	165 - 206	170 - 213	178 - 225	182 - 238	186 - 244
Vitamin B ₁₂	139 - 155	149 - 171	154 - 179	176 - 202	184 - 213	187 - 221

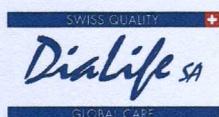
- Clearance data measured in vitro according to standard EN 1283 at Q_b = 200 / 300 ml/min, Q_d = 500 ml/min, Q_f = 10 ml/min, T = 37 °C, TMP Max = 500 mmHg.
- Ultrafiltration coefficients measured using human blood Hct 32%, protein content 6%.



MATERIAL

Membrane Material	Polyethersulfone Hollow Fiber
Housing Material	Polycarbonate
Potting Compound	Polyurethane
Sterilization Method	Irradiation

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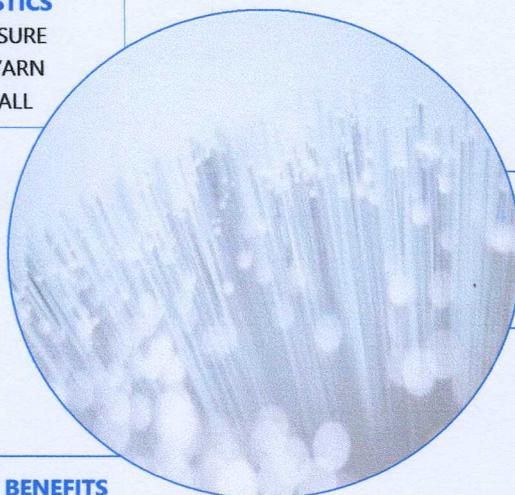
ΝΤΙΑΛΜΕΝΤΙΚΑ ΑΕ

ΕΠΙΣΥΝΑΠΤΟΜΕΝΟ 2

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PRODUCT CHARACTERISTICS

UNIQUE POLIMER COMPOSURE
MULTIFILAMENT SPACER YARN
REDUCED MEMBRANE WALL



CLINICAL ADVANTAGES

OPTIMUM BIOCOMPATIBILITY
EVEN FLOW OF DIALYSATE
IMPROVED DIFFUSIVE CLEARANCE

PATIENT BENEFITS

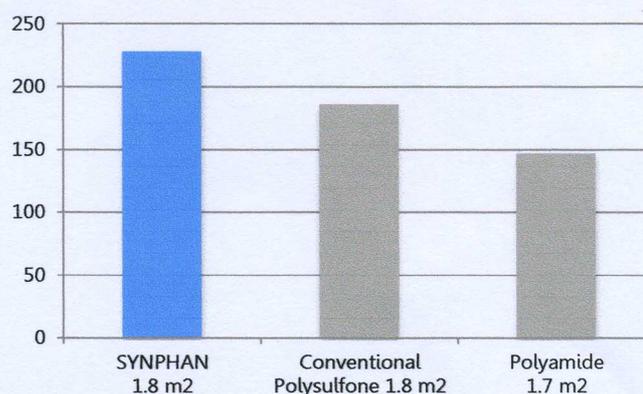
ENHANCED SECURITY
UNMATCHED TREATMENT CONSISTENCY
SUPERIOR DIALYSIS PERFORMANCE

BIO LS dialyzers are composed of SYNPHAN membrane, a revolutionary synthetic fiber developed by Membrana GmbH, Germany, which sets advanced standards for haemodialysis treatment.

The BIO LS line offers distinctive advantages compared to conventional dialyzers:

- Unique polymer and pore structures provide excellent hemocompatibility and performance;
- Innovative *Performance Enhancing Technology* incorporates a multifilament spacer yarn, which contributes to deliver an even flow of dialysate.
- Reduced wall thickness of 35 μm - less than conventional synthetic membranes - enhances diffusive clearance.
- It is significantly better than any other synthetic membrane at removing β_2 -microglobulin.

In-vivo removal of β_2 -microglobulin (hemodialfiltration in mg)



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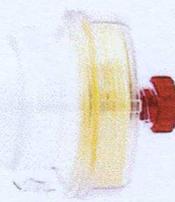
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PERFORMANCE
SAFETY
CONSISTENCY



Model	BIO L140S	BIO L160S	BIO L180S	BIO L200S	BIO L220S
Surface Area (sqm)	1.4	1.6	1.8	2.0	2.2
UF Coefficient (ml/h/mmHg)	18	20	21	24	25
Priming Volume (ml)	80	86	102	109	117

Clearances In-Vitro (ml/min)

QD = 500ml/min - Temperature = 37°C - QF = 10 ml/min

QB = 200ml/min

Urea	183	187	192	194	195
Creatinine	176	179	185	189	191
Phosphate	154	158	166	172	176
Vitamin B12	122	133	139	141	145

QB = 300ml/min

Urea	235	242	249	254	259
Creatinine	212	220	229	235	243
Phosphate	180	192	208	215	220
Vitamin B12	131	140	149	157	161

QB = 400ml/min

Urea	264	276	284	293	301
Creatinine	237	249	258	267	278
Phosphate	206	220	233	246	259
Vitamin B12	136	146	158	167	173

- Performance data measured in vitro according to standard EN 1283.
- UF measurement using bovine/human blood (Hct 32%, Protein 60 g/l).

Membrane	SYNPHAN®
Housing & Headers	Polycarbonate
O-rings	Silicone
Potting Compound	Polyurethane
Caps	Polyethylene
Sterilization	Gamma Radiation

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ΕΠΙΣΥΝΑΠΤΟΜΕΝΟ 3

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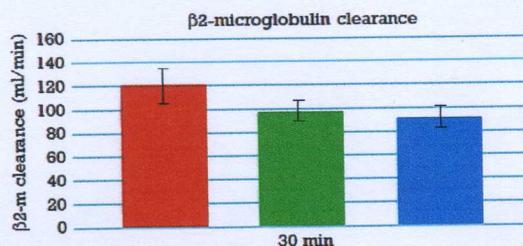
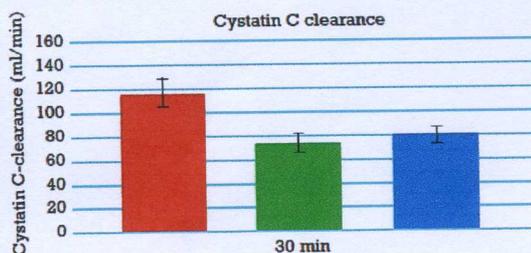
PUREMA®

PUREMA® H is simply the most advanced membrane available today for high flux dialysis treatment.

Featuring S.E.T. Sieving Enhancing Technology and P.E.T. Performance Enhancing Technology, PUREMA® has a unique separation profile with a sharpened cut-off for the targeted elimination of middle molecules and combines enhanced clearance of small molecular weight uremic toxins with outstanding, stable clearance performance.

S.E.T. is a patented process technology that yields a steeper sieving curve and improved removal characteristics, while P.E.T. ensures optimum distribution of the flow around capillaries to guarantee ideal transport and removal, via the integration of multifilament threads into the fibre bundle.

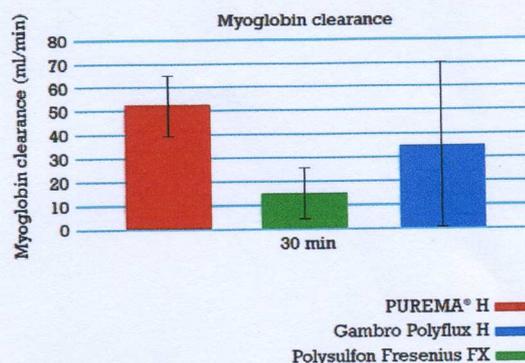
- **Active surface management**
- **Reduced protein adsorption**
- **More uniform pore size distribution**
- **Steeper sieving curve**



- **Enhanced, more selective removal**
- **Better dialysate distribution**
- **Optimal clearance values**
- **Increased Performance consistency**

PUREMA® H eliminates middle molecular weight toxins without loss of useful proteins, thus reducing the risk of dialysis associated adverse effects like amyloidosis, while improving nutritional status and decreasing the severity of lipid abnormalities.

PUREMA® H allows for middle molecular removal under haemodialysis at levels which were only seen before under haemodiafiltration, while providing superior, highly stable clearance values throughout treatment.



PUREMA® is a registered trademark of Membrana GmbH, Germany.

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