PuraMem®

Technical Information
PuraMem® Products

PURAMEM® 280, PURAMEM® S600, PURAMEM® SELECTIVE, PURAMEM® PERFORMANCE AND PURAMEM® FLUX

PuraMem® membranes are designed to be used in Organic Solvent Nanofiltration (OSN) applications. They perform best in apolar solvents – for example aliphatic and aromatic hydrocarbons – and are currently available with a cutoff of 280Da and 600Da. PuraMem® products are usually used in flat sheet form for lab scale membrane screening tests and in spiral wound format for pilot and commercial processes.

Main applications	Main benefits
Removal of polymeric impurities	Increased product **value**
Product purification	Reduced operating **cost**
Monomer/dimer separation	Reduced processing **time**
Molecular fractionation	**Environmentally friendly**
Room temperature solvent exchange	
Catalyst recovery and recycle	
Decoloration	
Solvent recycling	

PuraMem®

SPECIFICATIONS PURAMEM® 280 AND PURAMEM® S600®

General
- Membrane Material: Polyimide (PuraMem® 280) and Silicone-coated polyimide (PuraMem® S600)
- Flat Sheet: 210 x 297 mm
- Spiral-Wound Modules:

Type	1812	2512	2520	2540	4020	4040	8040*
Nominal Size (Dia x L)	1.8"×12"	2.5"×12"	2.5"x20"	2.5"×40"	4.0"×20"	4.0"×40"	8.0"×40"
Membrane Area (m²)[1]	0.11	0.17	0.60	1.8	2.0	5.4	24.0
Typical Feed Flow (L.h^{-1})	150	500	500	500	1500	1500	7500
Standard Feed Spacer (all)[1]	30 mil (0.76 mm)						

* Female module type.

SOLVENT STABILITY

- PuraMem® membranes are stable in mild and non-polar solvents[2]:
    - e.g. Alcohols (e.g. Methanol, Ethanol, 2-Propanol)
    - Aliphatic hydrocarbons (e.g. Hexane, Heptane)
    - Aromatic hydrocarbons (e.g. Toluene, Xylene)
    - Butyl Acetate, Ethyl Acetate
    - Methyl-Ethyl-Ketone
    - Methyl-tert-Butyl-Ether
- PuraMem® membranes are not recommended for use in aqueous/water mixtures. For aqueous/organic solvent mixtures, please contact us for membrane recommendations.

USE CONDITIONS

Membrane Code	PuraMem®	PuraMem® S
MWCO (g.mol^{-1})[3,4]	280	600
Minimum Flux (L.m^{-2}.h^{-1})[3]	18	30
Typical Operating Pressure (bar)	20–40	20–40
Maximum Pressure (bar)	60	60
Maximum Temperature (°C)	50	50
Allowable pH	7	7

[1] Membrane area is a nominal value and depends on the spacer dimensions used in the module.
[2] Data referring to membrane sheets with pure solvents. If you intend to use a solvent not listed above please contact us for further advice.
[3] Performance Data are approximate and based on flat-sheet membrane. Test conditions: toluene at 30 bar and 30°C.
[4] Based on rejection of styrene oligomers dissolved in toluene. MWCO = molecular weight cut-off which is defined as the molecular weight at which 90% rejection is obtained from a curve of rejection versus molecular weight of styrene oligomers dissolved in toluene.

SPECIFICATIONS
PURAMEM® SELECTIVE, PURAMEM® PERFORMANCE, PURAMEM® FLUX

General
- Membrane Material: Silicone-coated PAN
- Flat Sheet: 210 x 297 mm
- Spiral-Wound Modules:

Type	1812	2512	2520	2540	4020	4040	8040*
Nominal Size (Dia x L)	1.8"×12"	2.5"×12"	2.5"x20"	2.5"×40"	4.0"×20"	4.0"×40"	8.0"×40"
Membrane Area (m²)[1]	0.18	0.27	1.1	2.2	2.5	6.7	32.0
Typical Feed Flow (L.h⁻¹)	300	800	800	800	2800	2800	12500
Standard Feed Spacer (all)	30 mil (0.76 mm)						

* Female module type.

SOLVENT STABILITY

- PuraMem® membranes are stable in mild and non-polar solvents[2]:
  - e.g. Alcohols (e.g. Methanol, Ethanol, 2-Propanol)
  - Aliphatic hydrocarbons (e.g. Hexane, Heptane)
  - Aromatic hydrocarbons (e.g. Toluene, Xylene)
  - Butyl Acetate, Ethyl Acetate
  - Methyl-Ethyl-Ketone
  - Methyl-tert-Butyl-Ether
- PuraMem® membranes are not recommended for use in aqueous/water mixtures. For aqueous/organic solvent mixtures, please contact us for membrane recommendations.

USE CONDITIONS

Typical Operating Pressure (bar)	20–40
Maximum Pressure (bar)	60
Maximum Temperature (°C)	50
Allowable pH	7

PERFORMANCE

PuraMem® Selective, Performance and Flux are composite membranes. Molecules solubility (and not diffusion!) dominates the membrane separation. Therefore, the cut-off of the membrane is strongly dependent on the solvent-solute combination. MWCO obtained in one standard system is not characteristic for this type of membrane. Best suitable membrane for the application can be chosen by testing in real solution.

Solvent	Toluene	Heptane	Methylet hylketon	Ethanol
PuraMem® Selective	30	15	20	4
PuraMem® Performance	50	60	80	10
PuraMem® Flux	70	80	100	15

1 Membrane area is a nominal value and depends on the spacer dimensions used in the module.
2 Data referring to membrane sheets with pure solvents. If you intend to use a solvent not listed above please contact us for further advice.
3 Minimal permeate flux, data are approximate and based on flat-sheet membrane. Test conditions: 30 bar and 30°C.2

DIMENSIONS

PuraMem® Membrane Module

Module	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
1812	305	200	52	19.05	53–55
2512	305	200	63	19.05	64–66
2540	1016	910	63	19.05	64–66
4020	508	410	100	19.05	101–103
4040	1016	920	100	19.05	101–103