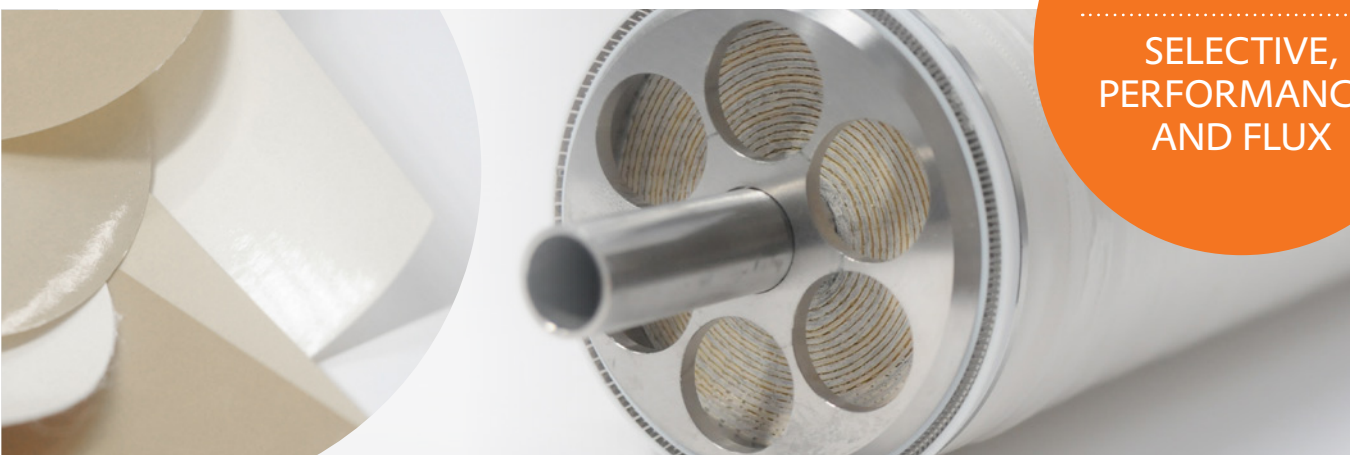


Technical Information

PURAMEM® OSN PRODUCTS



PURAMEM® OSN

 SELECTIVE,
 PERFORMANCE,
 AND FLUX

PURAMEM® OSN Membranes

PURAMEM® OSN membranes are a family of flat-sheet membranes designed to be used in Organic Solvent Nano-filtration (OSN) applications. They are stable in a wide variety of organic solvents and perform best in non-polar to moderately polar solvents – for example hydrocarbons, esters and ketones.

Three PURAMEM® OSN membranes are available

1. **PURAMEM® Flux**
highest permeate flux, lower rejection
2. **PURAMEM® Performance**
intermediate flux, intermediate rejection
3. **PURAMEM® Selective**
lowest flux, highest rejection

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.

Benefits

| Typical uses | Main benefits |
|-----------------------------------------------|-----------------------------------------------------------|
| Solvent recycling | Sustainable separation technology |
| Impurity removal | Environmentally friendly, low carbon footprint technology |
| Product concentration and purification | Increased product value |
| Catalyst recovery and recycle | Non-thermal separations |
| Colour removal | Low-energy separation |
| Room temperature solvent exchange | Reduced operating cost |
| Monomer/dimer separation | Reduced processing time |
| Molecular fractionation | Non-thermal separations |

Specifications PURAMEM® OSN Selective, Performance and flux

General

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

| Spiral-Wound Modules | | | | | |
|----------------------------------------------|------------------|----------|----------|----------|----------|
| Type | 1812 | 2512 | 2540 | 4040 | 8040* |
| Nominal Size (Dia x L) | 1.8"×12" | 2.5"×12" | 2.5"×40" | 4.0"×40" | 8.0"×40" |
| Membrane Area (m ²) ¹ | 0.2 | 0.3 | 2.3 | 6.8 | 33.2 |
| Typical Feed Flow (L.h ⁻¹) | 300 | 800 | 800 | 2800 | 12500 |
| Standard Feed Spacer (all) | 30 mil (0.76 mm) | | | | |

* Female modul type

Solvent stability

- PURAMEM® OSN membranes are stable in mild and non-polar solvents:
 - 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® OSN membranes are not recommended for use in aqueous or water mixtures. For aqueous or organic solvent mixtures, please contact us for membrane recommendations.

Use conditions

| 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. Unlike porous membranes, molecular solubility (and not diffusion) of the solutes and solvent in the silicone separating layer dominates the mass transport of these compounds. This strongly influences the membrane separation performance. Therefore, the cut-off (MWCO) of the membrane is strongly dependent on the membrane-solvent-solute combination. For this type of membrane, MWCO obtained in a standard system is not necessarily indicative of actual membrane performance in a given application, and the most suitable membrane for an application should be chosen by experimental testing of the membranes in the real solution.

| Solvent | Toluene |
|----------------------|-----------------|
| PURAMEM® Selective | 20 ³ |
| PURAMEM® Performance | 30 |
| PURAMEM® Flux | 50 |

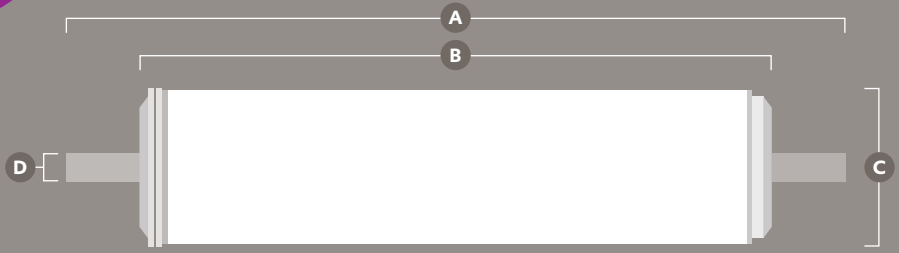
¹ Membrane area is a nominal value and depends on the spacer dimensions used in the module.

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.

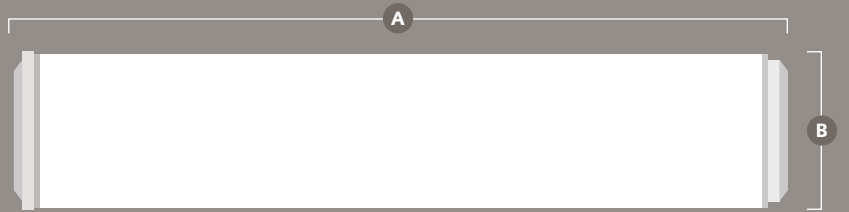
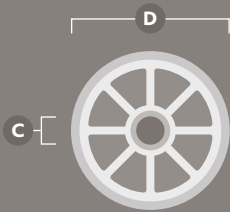
³ Nominal permeate flux, data are approximate and based on flat-sheet membrane. Test conditions: 30 bar and 30°C.

DIMENSIONS

PURAMEM®



| 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 |
| 4040 | 1016 | 920 | 100 | 19.05 | 101-103 |



| Modul | A (mm) | B (mm) | C (mm) | D (mm) |
|-------|--------|--------|--------|---------|
| 8040 | 1016 | 200 | 30,15 | 201-203 |

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