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Presentation outlook

1. Polymem presentation
2. Polymem, your partner for membrane development and scale-up
3. Focus on two Polymem innovations in the membrane field
 - Neophil™ : new durable hydrophilic PVDF membrane
 - Gigamem® : enlargement of module size to save Capex and Opex
4. Conclusions

Polymem

The French membrane manufacturer : Independent / Innovative / Industrial / International

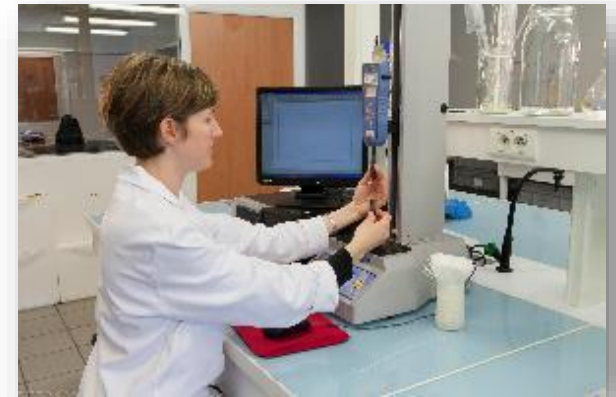
- Creation : 1997
- Location: Castanet Tolosan (Toulouse – FRANCE)
- About 60 people
- Membrane technology knowledge and expertise for water treatment applications:
 - ❖ UF/MF, PSU/PVDF material
 - ❖ Modules design
 - ❖ Process design
- Approvals: ACS since 2007 and NSF/ANSI 61 since 2004
- More than 300 installations worldwide
- Industrial partnerships
- Current developments for Gas membranes (gas separation) / Membrane contactors (CO2 capture)....



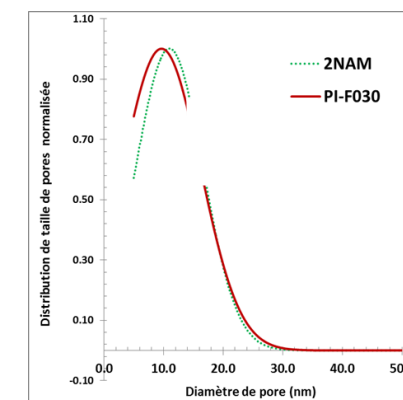
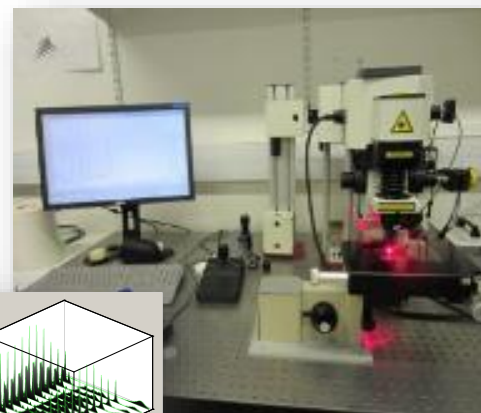
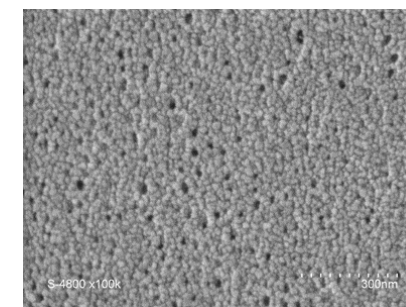
3. Polymem – your partner for membrane development and scale up

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Our lab facilities and spinning lines



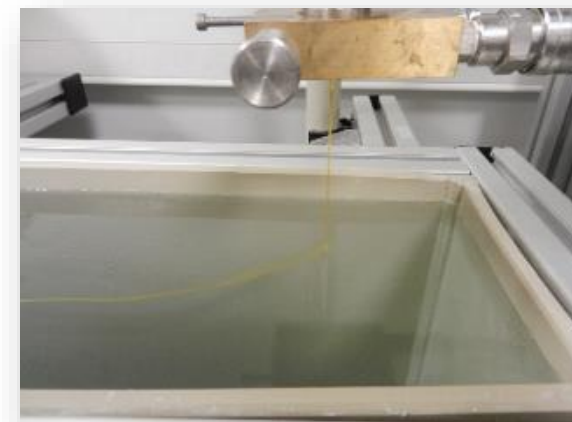
3. Polymem and IEM : common lab for membranes characterizations



3. Polymem – your partner for membrane development and scale up

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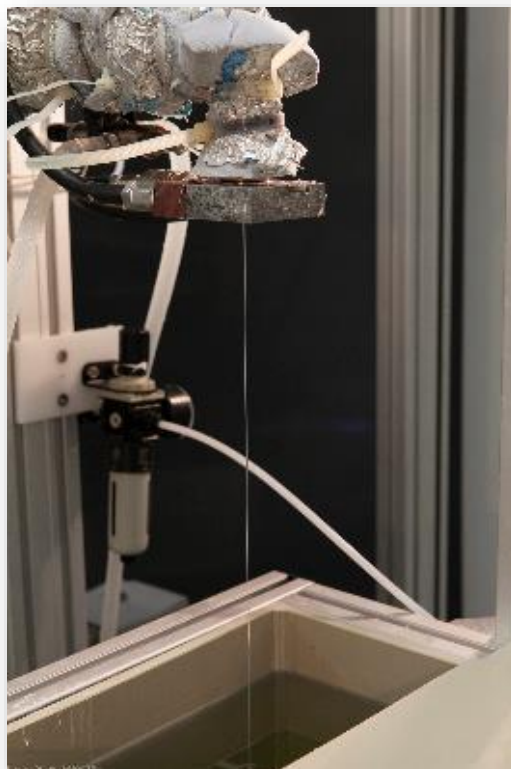
Micro spinning line for dope screening 0 to 500 g



3. Polymem – your partner for membrane development and scale up



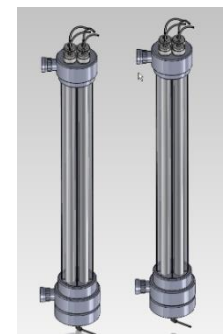
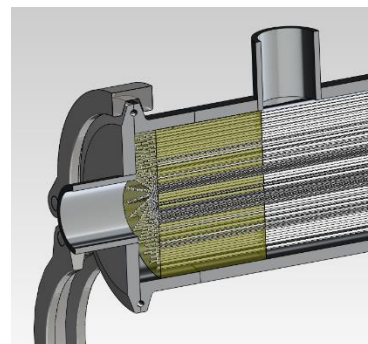
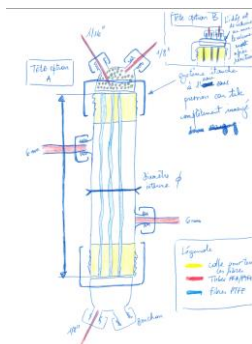
Pilot spinning line for larger production 1 to 50 kg



3. Polymem – your partner for membrane development and scale up



Modules design and modules manufacturing (from lab to industrial scale)



Our R&D partners

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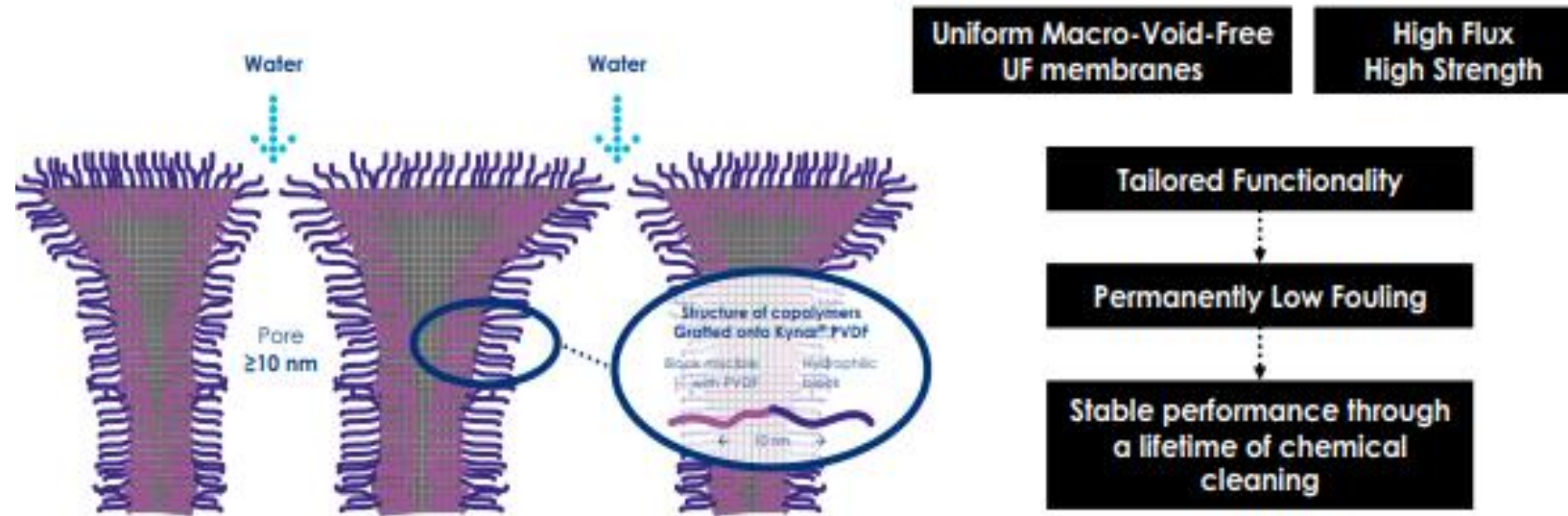


Presentation outlook

1. Polymem presentation (video)
2. Polymem, your partner for membrane development and scale-up
3. Focus on two Polymem innovations in the membrane field
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 - Gigamem® : enlargement of module size to save Capex and Opex
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Neophil™ New generation of fluorinated polymer hollow fibers

Innovation = block copolymers anchored in a PVDF Kynar® matrix

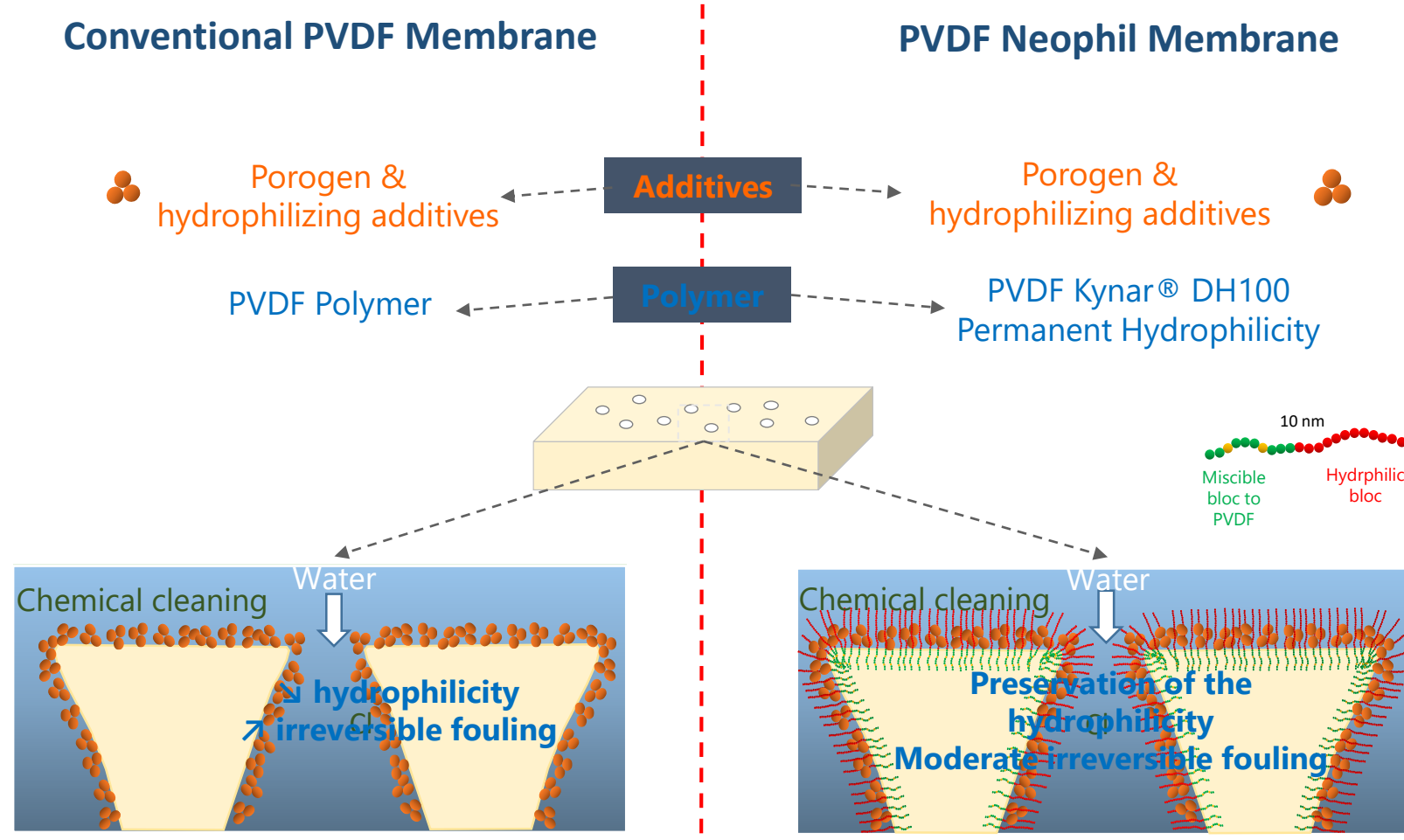


Polymem, in partnership with Arkema has developed a new PVDF ultrafiltration membrane generation made from a new modified PVDF commercialized by Arkema under the Kynar® PVDF name. The modification is based on a proprietary block copolymer which provides solid and durable anchoring in the PVDF backbone as well as

local hydrophilicity to inner and outer membrane porosity. Furthermore its strong resistance to oxidation ensures the modification to be maintained during the entire lifetime of the membrane.

Neophil™ composition

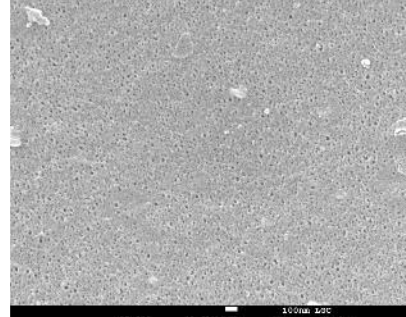
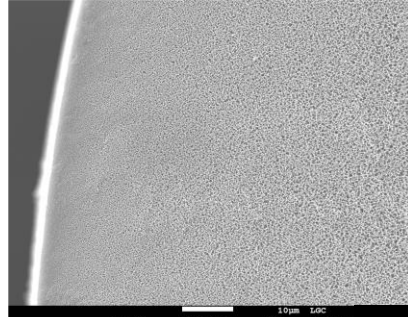
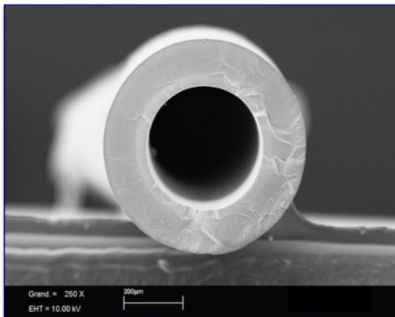
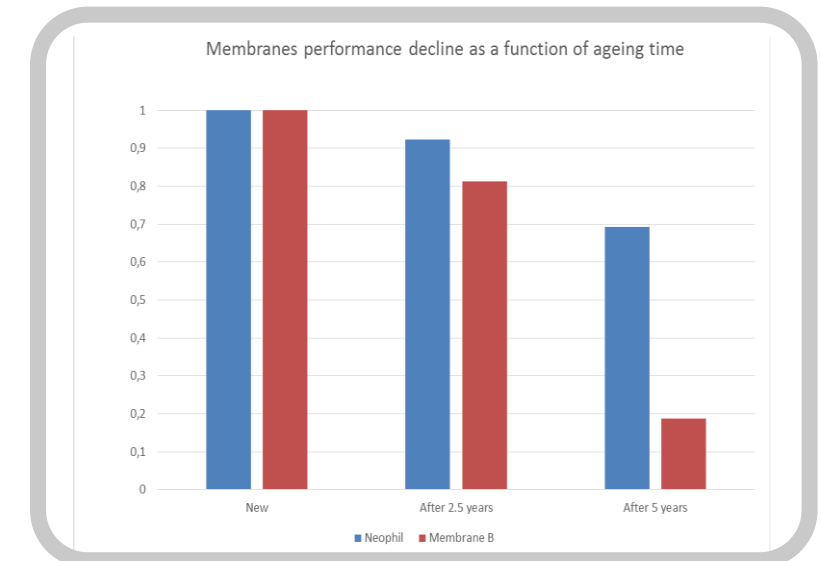
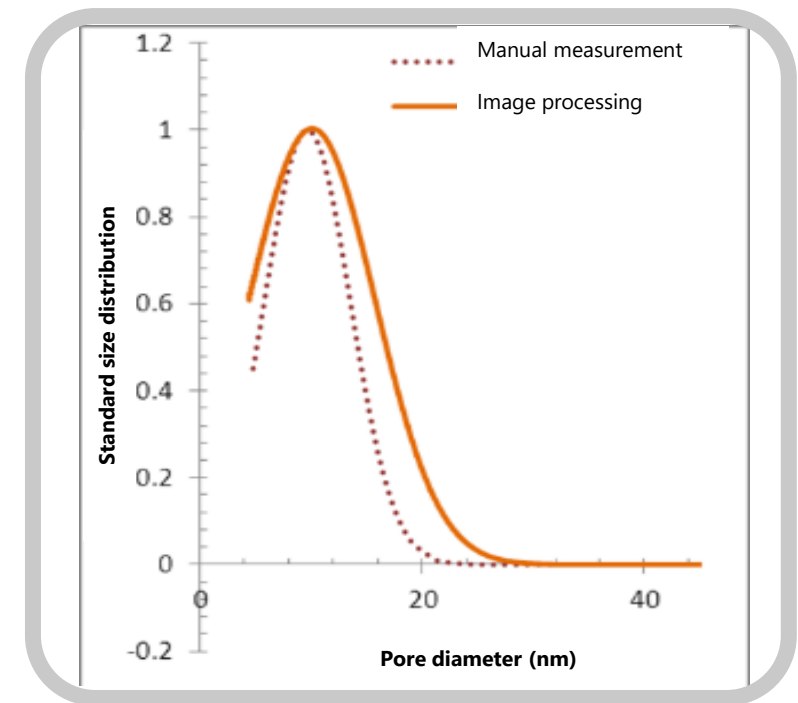
versus conventional PVDF membranes



Neophil™ permanent efficiency

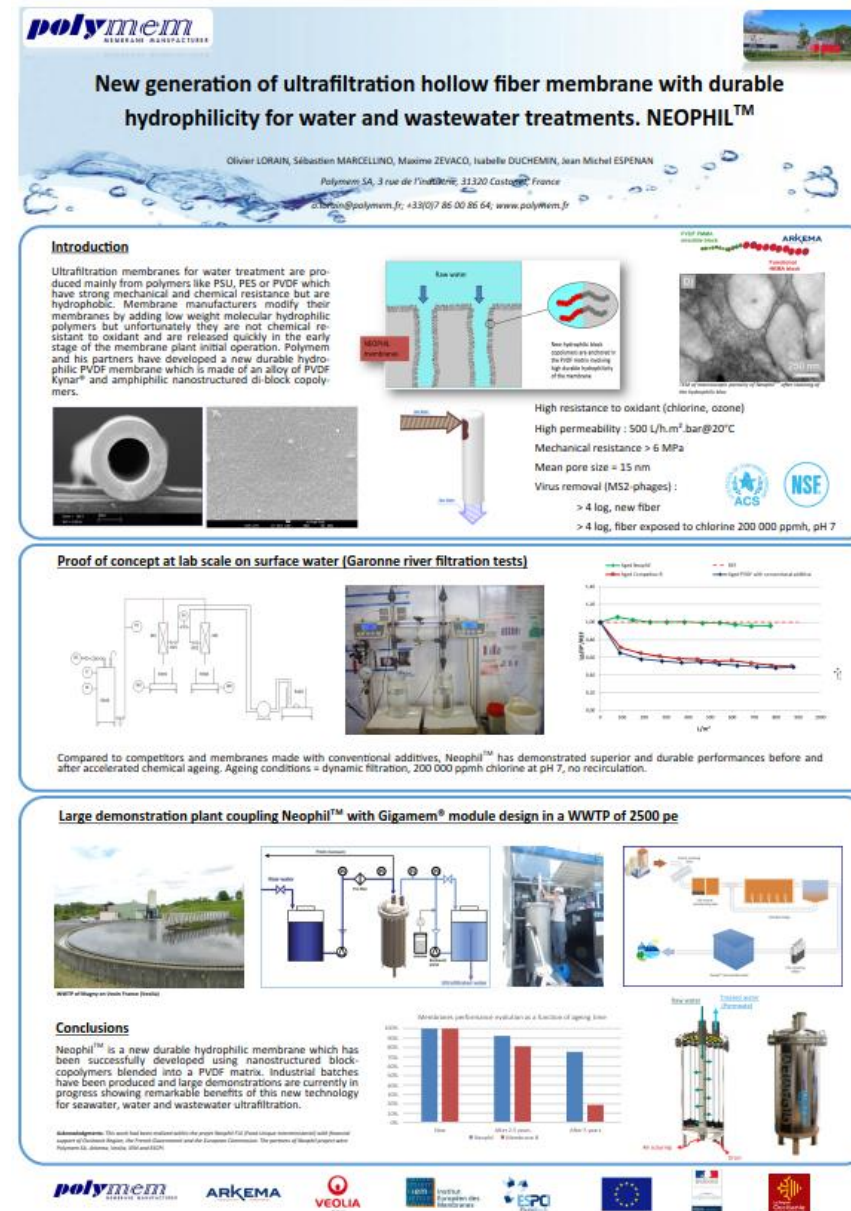
constant hydrophilicity and constant removal efficiency

- Resistance to oxidants (chlorine, ozone...)
- High permeability 400 – 500 L/h.m².bar @ 20°C
- Excellent mechanical resistance
 - Traction >6 MPa
 - Elongation at break >160 %
- Mean pore size 15 nm
- Permanent characteristics and efficiency : No loss of performance in comparison of conventional PVDF membranes
- Virus removal / MS2 Phages :
 - > 4 log on new fiber
 - AND
 - > 4 log on aged fibers
 - (exposed to 200,000 ppm.h chlorine @ pH 7)



Poster session

P98. [547]. New hydrophilic PVDF ultrafiltration hollow fiber membrane with durable hydrophilicity for water and wastewater treatment Olivier LORAIN*, Sébastien MARCELLINO, Maxime ZEVACO, Isabelle DUCHEMIN, Jean Michel ESPENAN *POLYMEM, France



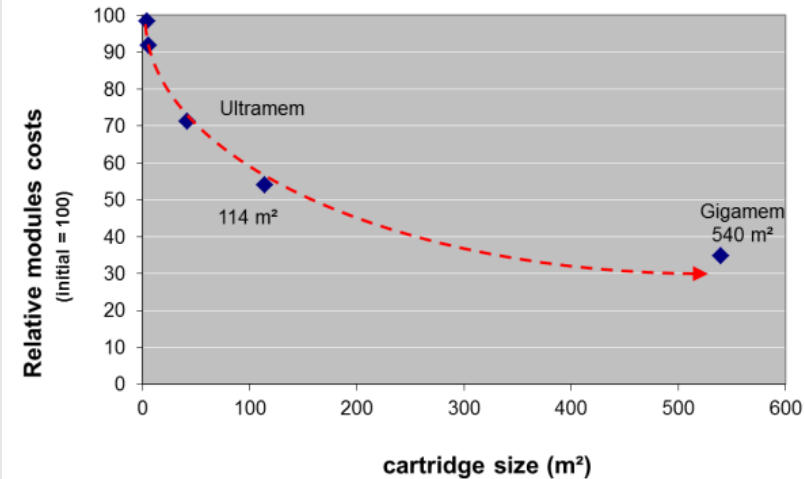
GIGAMEM® Modules

The most compact and economic ultrafiltration module range available

- UF/MF modules sizes are standardized between 8 and 12 inches
- Huge number of modules for large plant
- Mega module : Gigamem 540 m², 24 inches

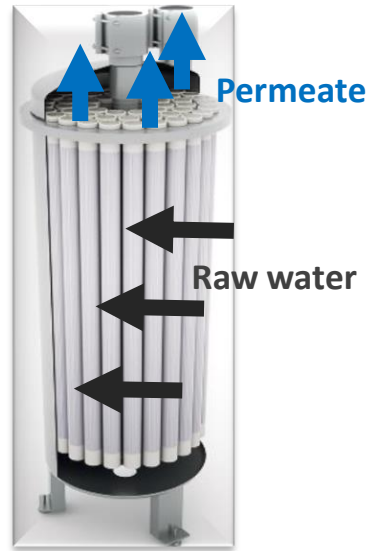
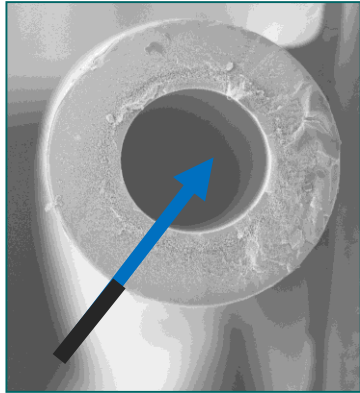


Polymem modules



GIGAMEM® Modules

The most compact and economic ultrafiltration module range available



Gigamem Out/In filtration

- Accepts high suspended solids concentrations
- Easy dead end process with reduced numbers of connections / valves
- In place maintenance (no module handling)



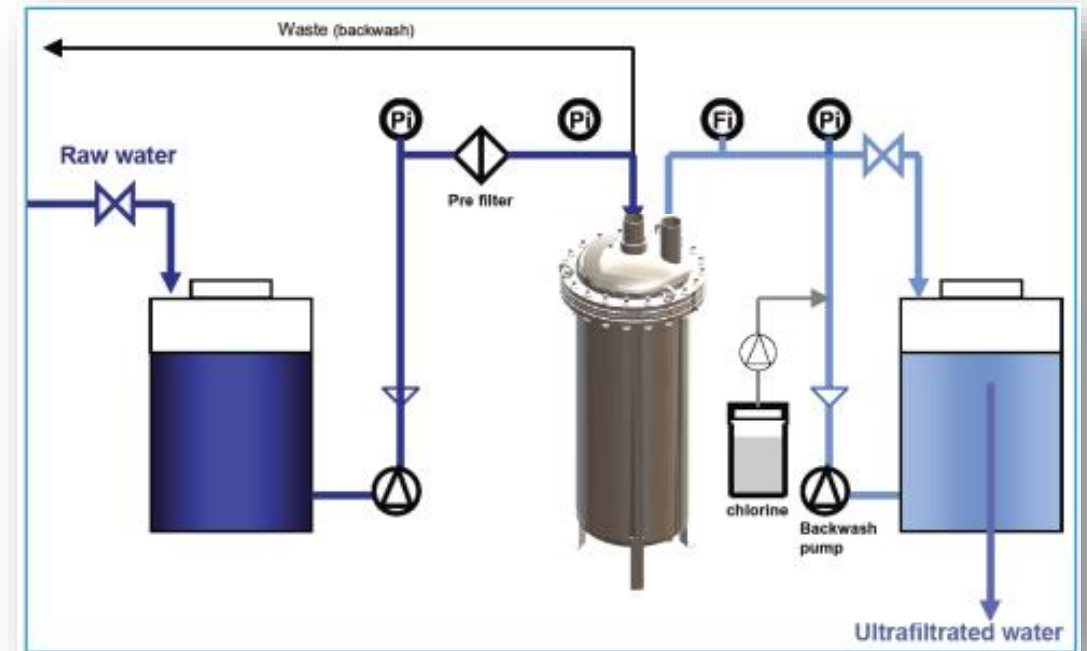
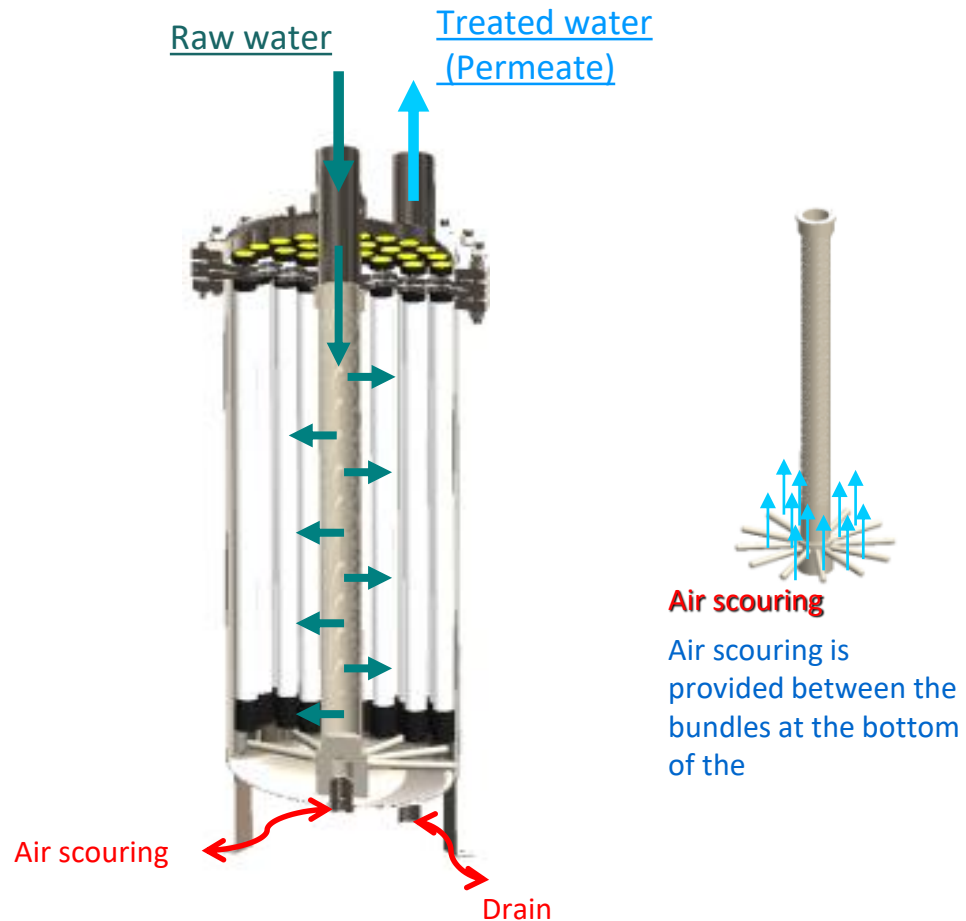
The concept for large capacity plants

- Compacity
- Reduced maintenance & operation
- Reduced replacement cost (only the membranes)
- A vessel for each application

GIGAMEM® Modules

The most compact and economic ultrafiltration module range available

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Polymem benefits

- to build more economic UF plants considering both
 - ☑ Capex
 - ☑ Opex
- for various applications
 - ☑ Drinking water production
 - ☑ Pretreatment of sea water before desalination
 - ☑ Waste water tertiary treatment
 - ☑ Industrial applications
 - ☑ ...



Polymem new product developments

Ultrafiltration / microfiltration / membrane contactor / gas separation
Cartridge development, design and manufacturing



Thank you...



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... and visit us



The 9th International Water Association (IWA)
Membrane Technology Conference
& Exhibition for Water and
Wastewater Treatment and Reuse



JOIN IWA-MTC 2019
JUNE 23-27, 2019
TOULOUSE, FRANCE

