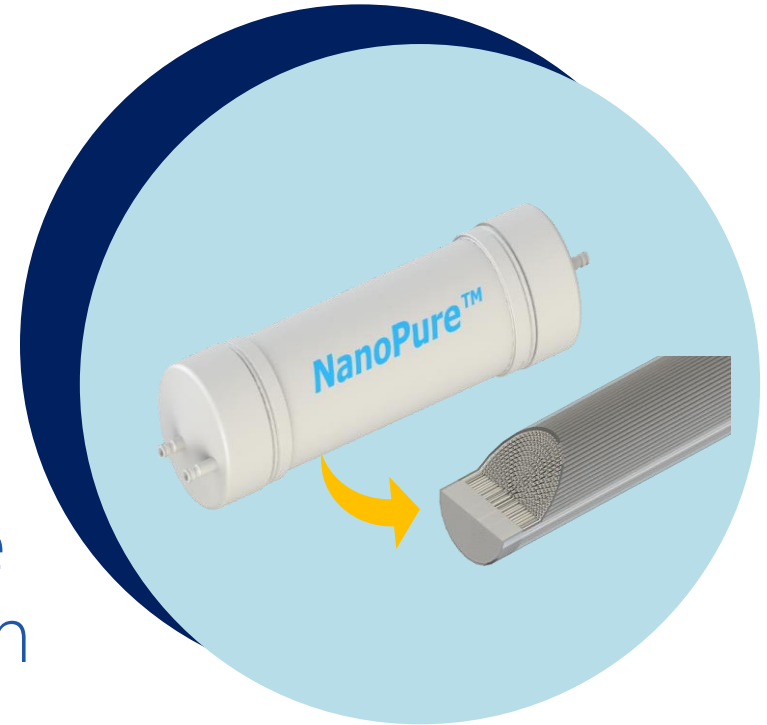




NanoPure™

Cutting-edge Low-pressure
Hollow Fiber Nanofiltration
Membrane





NanoPure™ Nanofiltration Membrane

NanoPure™ Milestones

2014

R&D Division
Started Within
CWST

2018

MemPure Ptd
Ltd Spin-off

2019

1st Generation
NanoPure™
Launched

2021

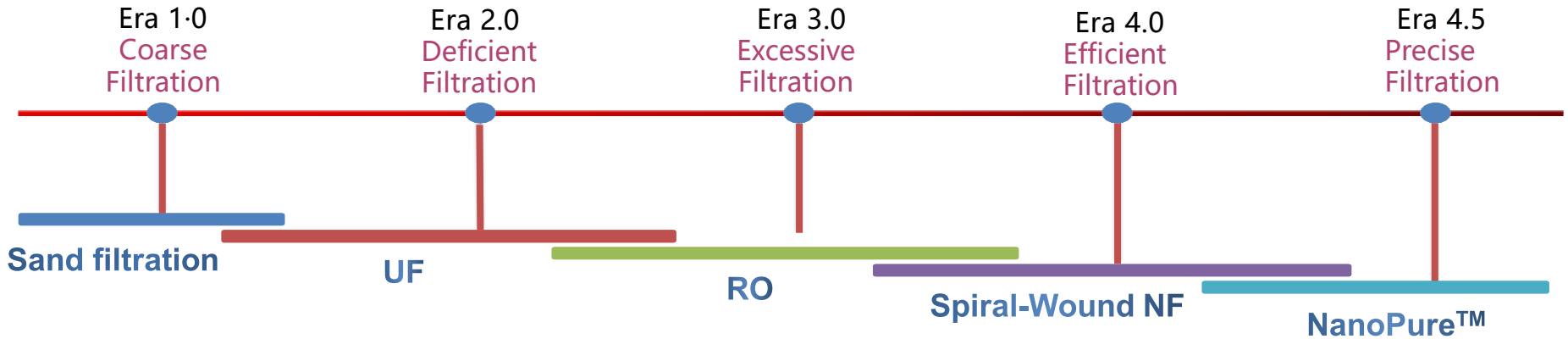
2nd Generation
NanoPure™
Launched



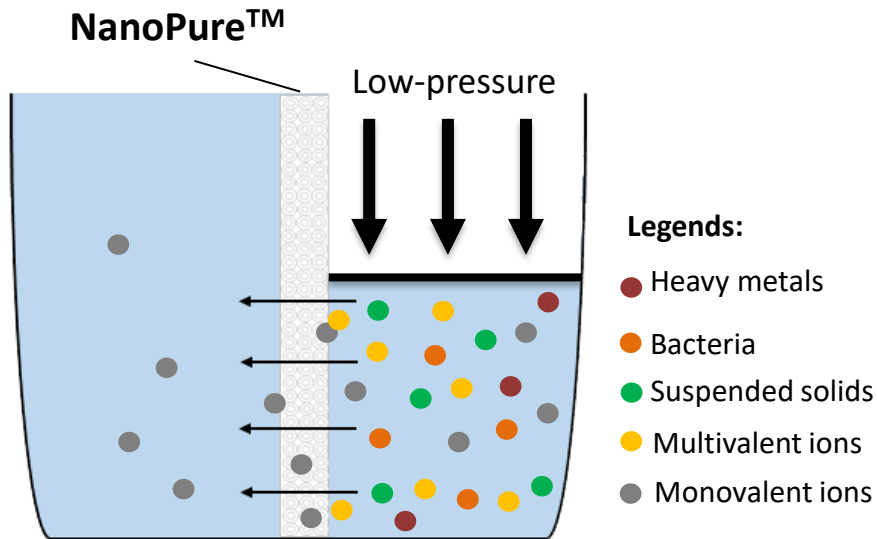


NanoPure™ Nanofiltration Membrane

Water Filtration Retrospect



What is Nanofiltration



A low pressure-driven membrane process lies between ultrafiltration and reverse osmosis, utilizing selective surface charge and discrete pore for precise filtration.



NanoPure™ Nanofiltration Membrane

Features

Selective-surface
Charge



Oxidation/Fouling
Resistant



Back-washable



Low-pressure/High
Throughput



Strengths

Cost Effective



Simplified
Process



Minimum
Maintenance



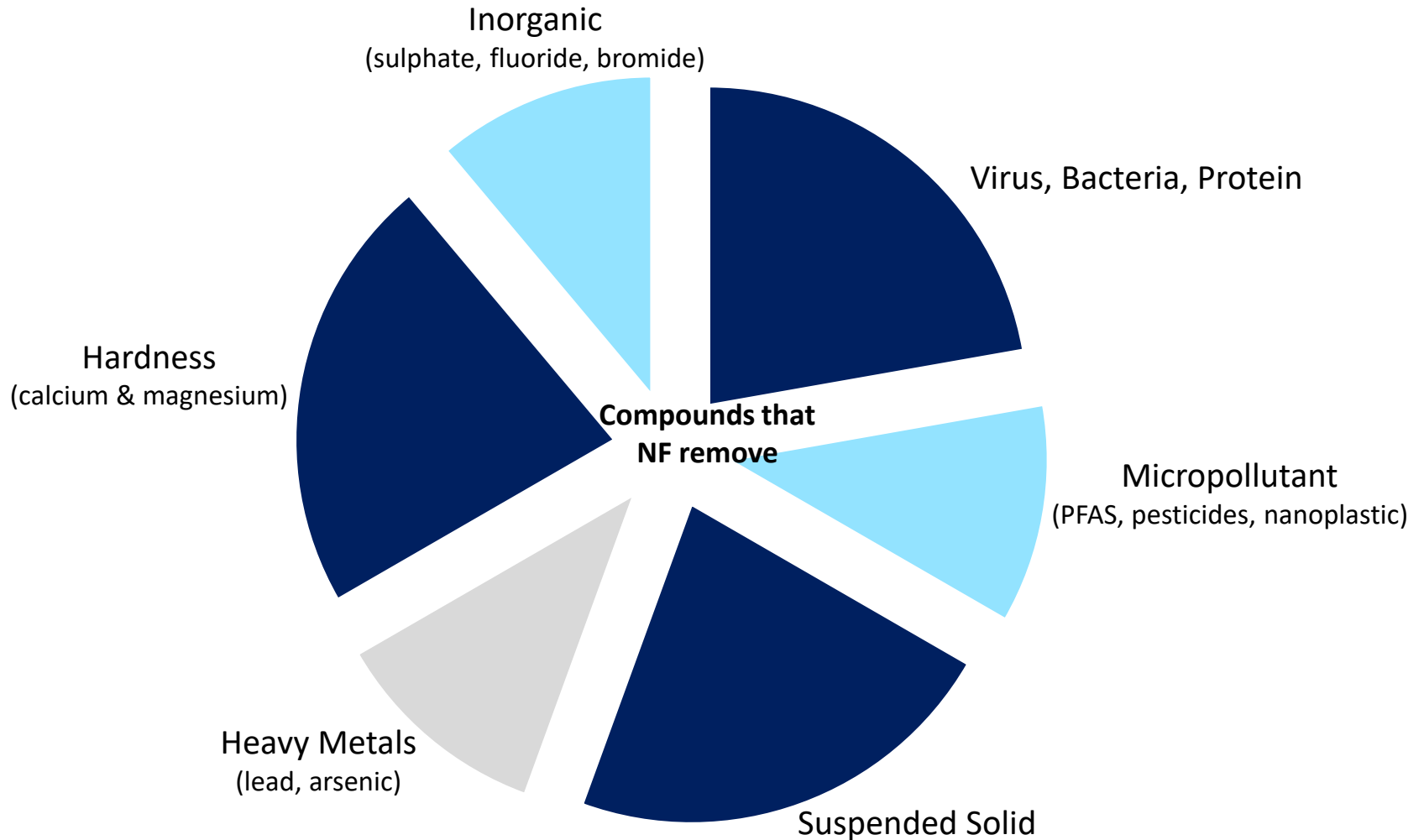
Beneficial Water
Quality





NanoPure™ Nanofiltration Membrane

What The Membrane Does





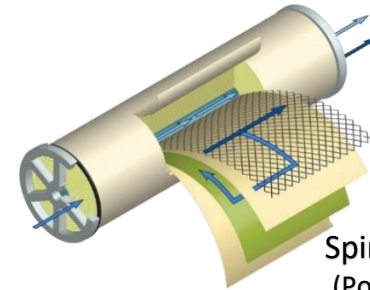
NanoPure™ Nanofiltration Membrane

Market Competitiveness

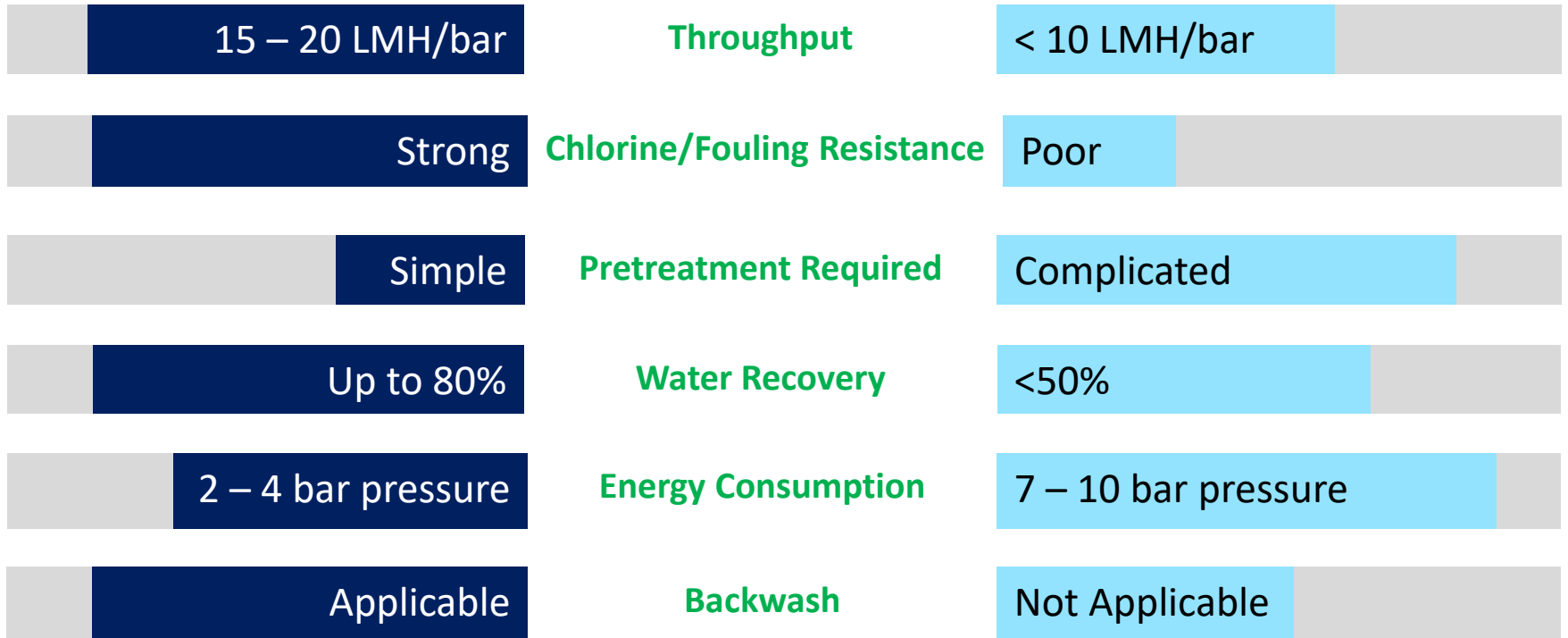


NanoPure™ Hollow Fiber Membrane
(PES-based hollow fiber)

VS



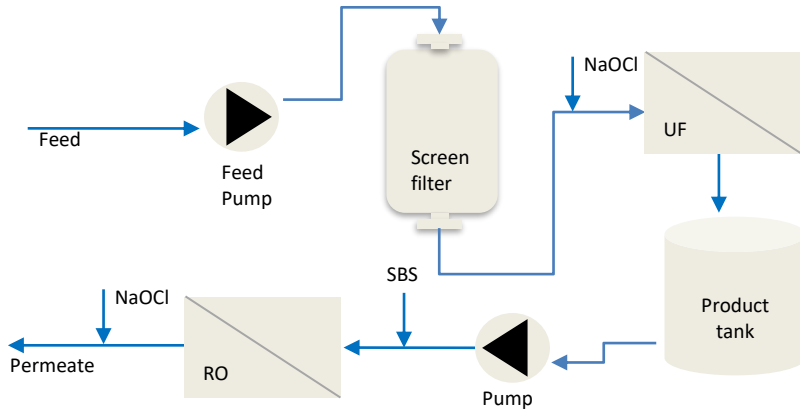
Spiral Wound Membrane
(Polyamide-based flat sheet)



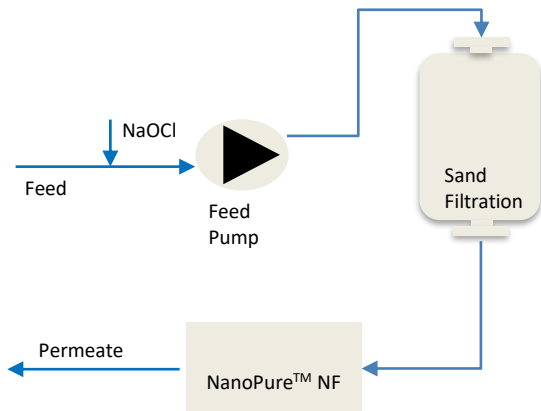


NanoPure™ Nanofiltration Membrane

Process Comparison - NanoPure™ vs UF+RO System

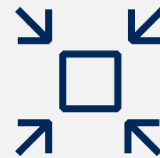


Typical UF + RO Process Flow Diagram



NanoPure™ NF Process Flow Diagram

NanoPure™ offers:



30% - 40% footprint reduction



CAPEX reduced to 31% - 41%

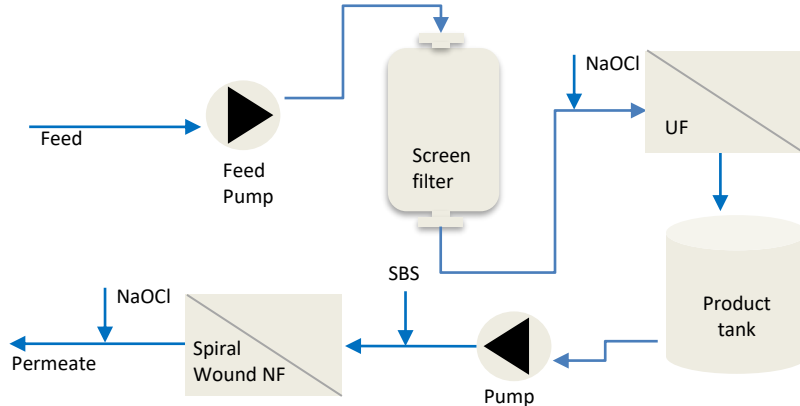


OPEX reduced to 27% - 45%

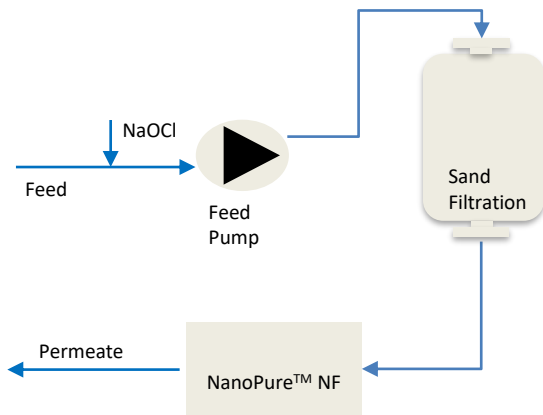


NanoPure™ Nanofiltration Membrane

Process Comparison – NanoPure™ vs UF + Spiral Wound NF System

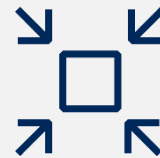


Typical UF + Spiral Wound NF Process Flow Diagram



NanoPure™ NF Process Flow Diagram

NanoPure™ offers:



25% - 35% footprint reduction



CAPEX reduced to 36% - 49%



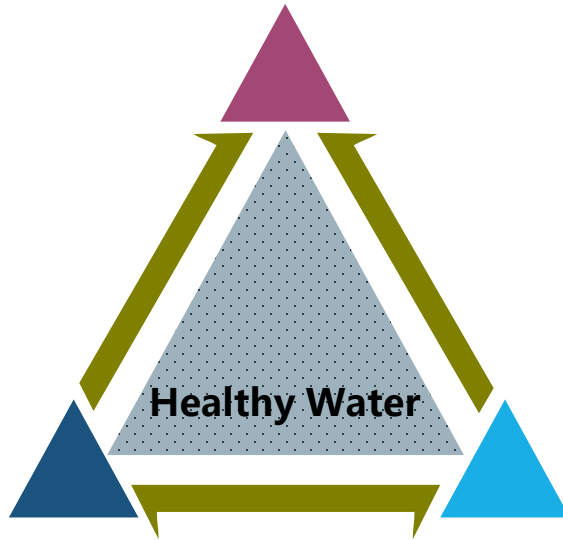
OPEX reduced to 41% - 55%



NanoPure™ Nanofiltration Membrane

POU Water Dispenser/Purifier

Water Saving
80% Recovery, Highly Efficient



Energy Saving

Low Pressure
Efficient heating

Compact

2-3 membrane
element

Before



After



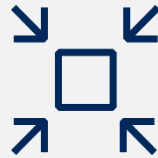


NanoPure™ Nanofiltration Membrane

POE Industrial System

Space Saving

Simple & compact



Anti-Oxidant

High chemical
resistance & long
service life



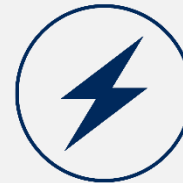
Cost Effective

Minimum
maintenance



Low CO₂ Footprint

Low operating pressure/
energy





NanoPure™ Nanofiltration Membrane

POE Industrial System

Membrane Module



Customized Design





NanoPure™ Nanofiltration Membrane

Application Scenario



Domestic Water

- For surface/ground water purification
- For residential/household use



Industrial Wastewater

- Removal of color from textile wastewater
- Removal of organics/COD from pharmaceutical, F&B, chemical, semiconductor industry



Water Reclaim/Reuse

- For cooling tower blowdown reclaim
- For municipal and industrial water reclaim



SWRO

Pre-Treatment

- Replace conventional pre-treatment units for SWRO