

Optimizing Industrial Wastewater Recycle with DuPont™ Multi-tech Solutions

June 10th, 2026

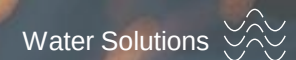
TNChE Asia 2026

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DuPont Water Solutions*



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Overview of DuPont Water Solutions

Key Metrics

~\$1.5B
2025E Net
Sales
11
Manufacturing
Sites
12
Technology
Centers
~1,300
Patents

Key Technologies



Reverse Osmosis



Ion Exchange Resins



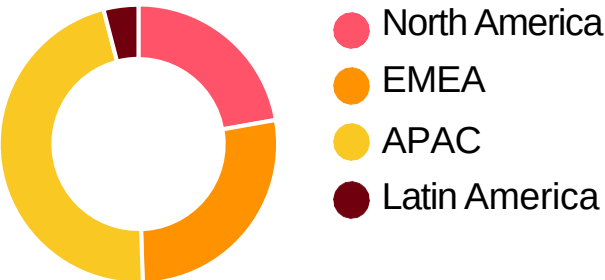
Ultra Filtration

Value Drivers

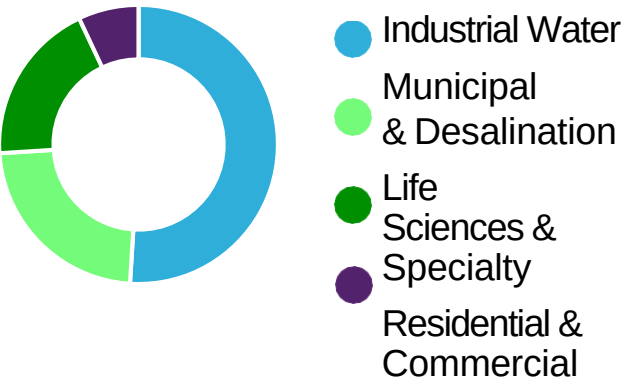
- ✓ Industry-leading brands with exceptional technology breadth and application development expertise
- ✓ Differentiated multi-technology portfolio enabling tailored solutions
- ✓ Decades of innovation expertise solving the world's toughest water challenges
- ✓ Recurring revenue business serving diversified markets
- ✓ Purpose-driven business well-positioned in end markets with favorable megatrends

Net Sales Mix

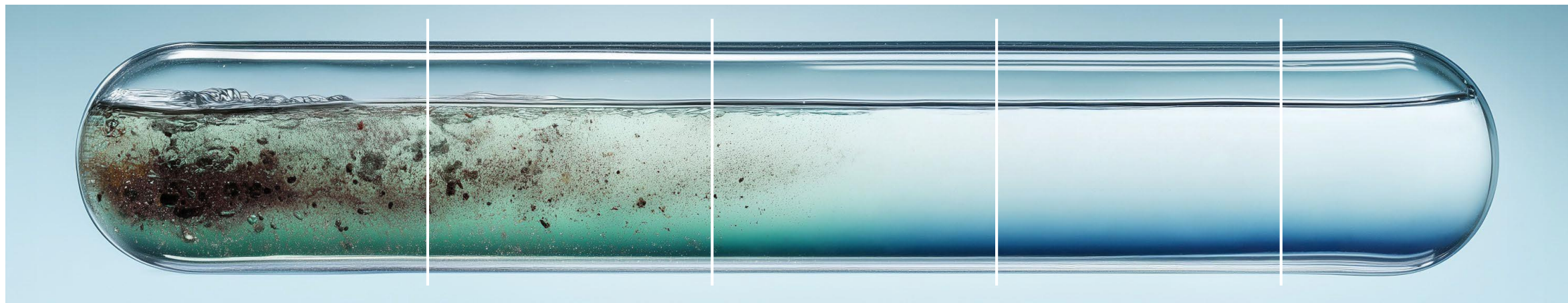
Geographic Split



End Market Split



Multi-tech for Water Treatment Technologies



Membrane Aerated Biofilm Reactors (MABR) & Membrane Bioreactors (MBR)

Activates sludge with biological processes

OXYMEM
a DuPont brand

DuPont™
MemPulse™
modules

Ultrafiltration (UF)

Filters particles, colloids, and macro-molecules

DuPont™
IntegraTec™
modules

DuPont™
Inge™
modules

DuPont™
MemCor™
modules

Nanofiltration (NF)

Removes large molecules

DuPont™
FilmTec™
elements

Reverse Osmosis (RO)

Removes most contaminants

DuPont™
FilmTec™
elements

Ion Exchange Resins (IER)

Further purification and separation

DuPont™
AmberLite™
resin



Water Optimization Best Practices

	Primary Philosophies of Water Resiliency	Solutions	Key Products / Portfolios
	 REDUCE	• Increase recovery through performance products • Higher recovery systems • Improve pretreatment	IntegraTec™ Ultrafiltration modules FilmTec™ ECO elements DesaliTec™ CCRO elements
	 REUSE	• Implement wastewater recovery & reuse • Reuse and achieve varying grades depending on use and value	IntegraTec™ Ultrafiltration modules FilmTec™ Fortilife™ BWRO elements FilmTec™ Fortilife™ XC elements
	 RECYCLE	• Recover resources from primary water streams like Gypsum, Ferric Phosphate, Sodium Sulphate and other valuable salts	IntegraTec™ Ultrafiltration modules FilmTec™ Fortilife™ NF1000 element FilmTec™ Fortilife™ NF1000 HP element FilmTec™ Fortilife™ XC120UHP element

A roll of FilmTec Fortilife Elements membrane is shown diagonally across the frame. The roll is white with a yellowish-brown inner core. A white line drawing of a muscular arm is superimposed over the roll, with the hand at the top right and the arm extending towards the bottom left. The background is dark grey.

FilmTec™ Fortilife™ Elements

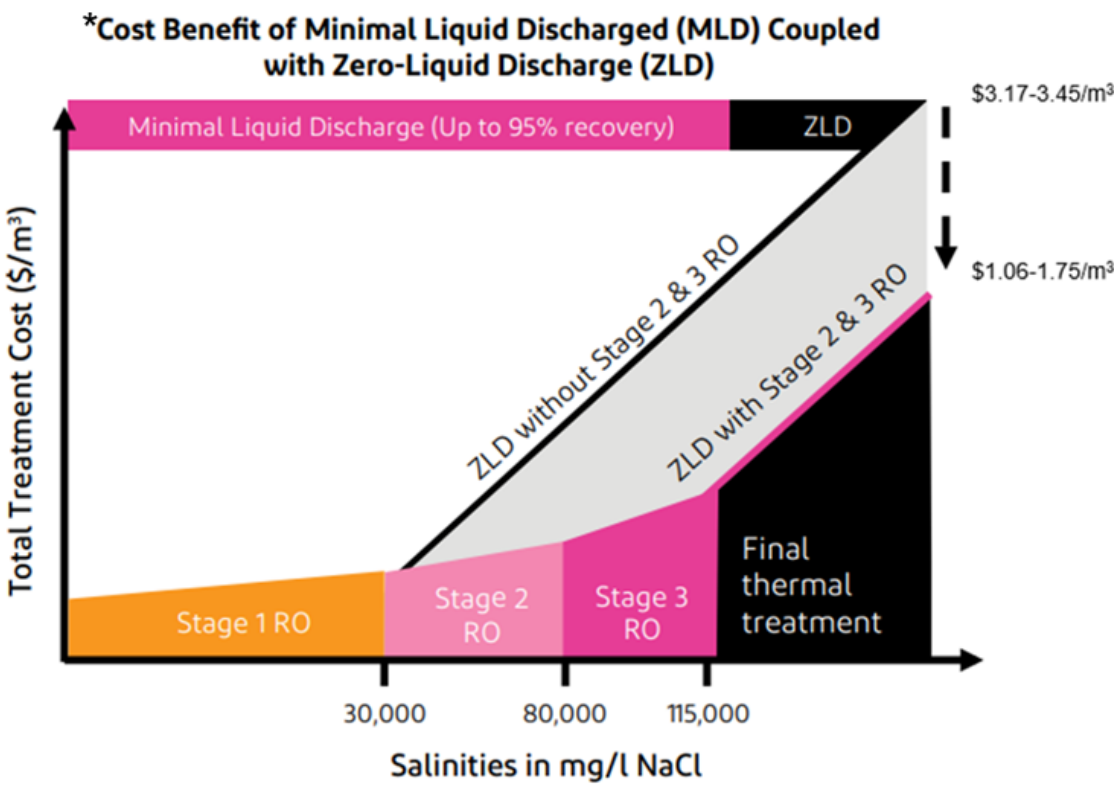
Recover More

Clean Less

Waste Less

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Cost Benefit of FilmTec™ Fortilife™ Elements for MLD



Zero-Liquid Discharge (ZLD) is Expensive

Incorporating membrane-based technologies ahead of costly thermal treatment can reduce operational costs.

Estimated Costs ²	Capital (\$ per m³/day)	Energy (kWh/m³)
Evaporator	2000 – 6000	22 – 40 ¹



Estimated Costs ²	Capital (\$ per m³/day)	Energy (kWh/m³)
Stage 1 RO (low pressure)	200 – 400	0.6 – 1
Stage 2 RO (high pressure)	400 – 800	1.5 – 2
Stage 3 RO (ultra-high pressure)	600 – 1200	5 – 8
Evaporator	2000 – 6000	22 – 40 ¹

1. Without reusing heat
2. Bond, R.G. and Veerapanenei, S. "Zeroing in on ZLD Technologies for Inland Desalination" Journal AWWA, 2008 100(9), 76-79



Progression Across Reuse → MLD/ZLD Continuum

Wastewater Reuse

Primary Challenge(s): High biofouling potential

TDS range
0 - 15 g/L

- Fortilife™ CR50
- Fortilife™ CR100
- Fortilife™ CR200

TDS range
0 - 15 g/L

- Fortilife™ CR50
- Fortilife™ CR100
- Fortilife™ CR200

15 – 80 g/L

- Fortilife™ XC70
- Fortilife™ XC80

High-Recovery Reuse

- Fouling management
- Balance recovery & energy consumption
- Minimize waste salt / brine reuse

TDS range
0 - 15 g/L

- Fortilife™ CR50
- Fortilife™ CR100
- Fortilife™ CR200

15 – 80 g/L

- Fortilife™ XC70
- Fortilife™ XC80

60 – 100 g/L

- Fortilife™ NF1000
- Fortilife™ NF1000HP

MLD/ZLD

- Maximize recovery
- Minimize final solid waste
- Resource recovery

TDS range
0 - 15 g/L

- Fortilife™ CR50
- Fortilife™ CR100
- Fortilife™ CR200

15 – 80 g/L

- Fortilife™ XC70
- Fortilife™ XC80

60 – 100 g/L

- Fortilife™ NF1000
- Fortilife™ NF1000HP

60 – 120 g/L

- Fortilife™ XC120UHP
- Fortilife™ XC120

90 – 250 g/L

- Fortilife™ XC160UHP
- Fortilife™ XC-Max UHP
- Fortilife™ XC220

As industries push toward zero-liquid-discharge, the FilmTec™ Fortilife™ portfolio provides the extension of RO membranes into higher-salinity regimes traditionally reserved for thermal process



Evolution of ZLD in China – Coal to Chemical



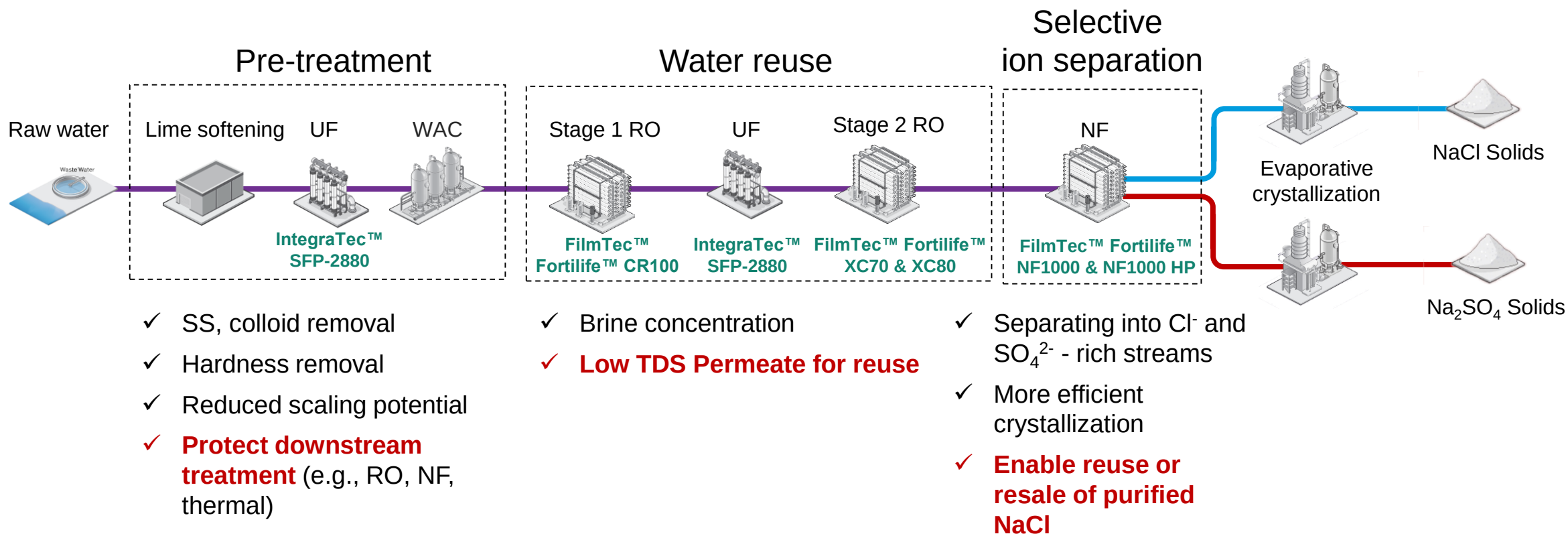
Shortlisted for Industrial
Project of the Year at 2022
GWI Global Water Awards



- Chemical Industrial Park located in Yulin, Shaanxi, China (~760 km/472 mi WSW of Beijing)
- Comprehensive example of a multi-tech solution (IX, UF, RO, and NF) to maximize water reuse and minimize energy consumption
- Use of Nanofiltration (NF) to separate final MLD waste stream into NaCl and Na₂SO₄-rich streams for more efficient crystallization and circularity (NaCl)
- Initial commissioning in 2013 (Phase 1). Updated expansion in 2019 (Phase 2)

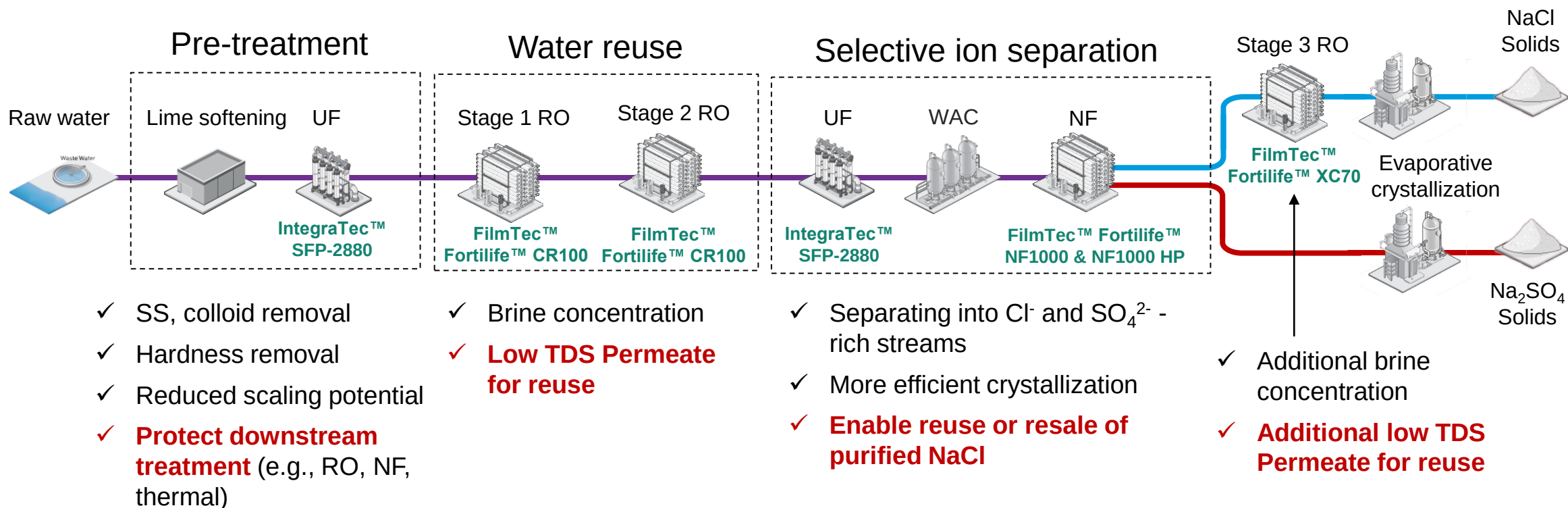
Evolution of ZLD in China – Coal to Chemical

Phase 1 – 900 m³/h MLD Plant (commissioned in 2013)



Evolution of ZLD in China – Coal to Chemical

Phase 2 – 900 m³/h MLD Plant (commissioned in 2019)





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