

From Brine to Resource

Advanced Membrane-Based Brine
Concentration, Water Reuse, and
Critical Mineral Recovery Solutions



The Brine Problem Has Outgrown Conventional Solutions

Industrial facilities are under growing pressure to cut freshwater use, meet ZLD targets, and extract value from waste streams. At the same time, regulations, water scarcity, and energy costs are making traditional thermal brine treatment increasingly expensive and complex.

Membrane-first brine concentration delivers comparable concentration performance at a fraction of the thermal energy cost.

FTS H₂O, an Aquatech company, delivers advanced membrane solutions that enable resource recovery while reducing energy use. As pioneers in Forward Osmosis (FO), FTS has commercialized both FO (ConcentratOAR™) and Osmotically Assisted Reverse Osmosis (RecovOAR™) for industrial applications. Combined with Aquatech's global expertise, our technologies enable more efficient freshwater recovery, ZLD, brine concentration, and mineral purification across various industries.

RecovOAR™

Osmotically Assisted Reverse Osmosis (OARO)

Core Performance Benefits:

- Brine concentration to > 250 g/L TDS
- Handles monovalent, divalent & mixed salts
- Operates at standard SWRO range
- Up to 100% increase in freshwater recovery
- Optimizes thermal energy use

Target Applications:

- Seawater brine mining and salt recovery
- Lithium processing
- Water recovery from produced water
- Zero Liquid Discharge (ZLD)

ConcentratOAR™

Forward Osmosis (FO) and OARO

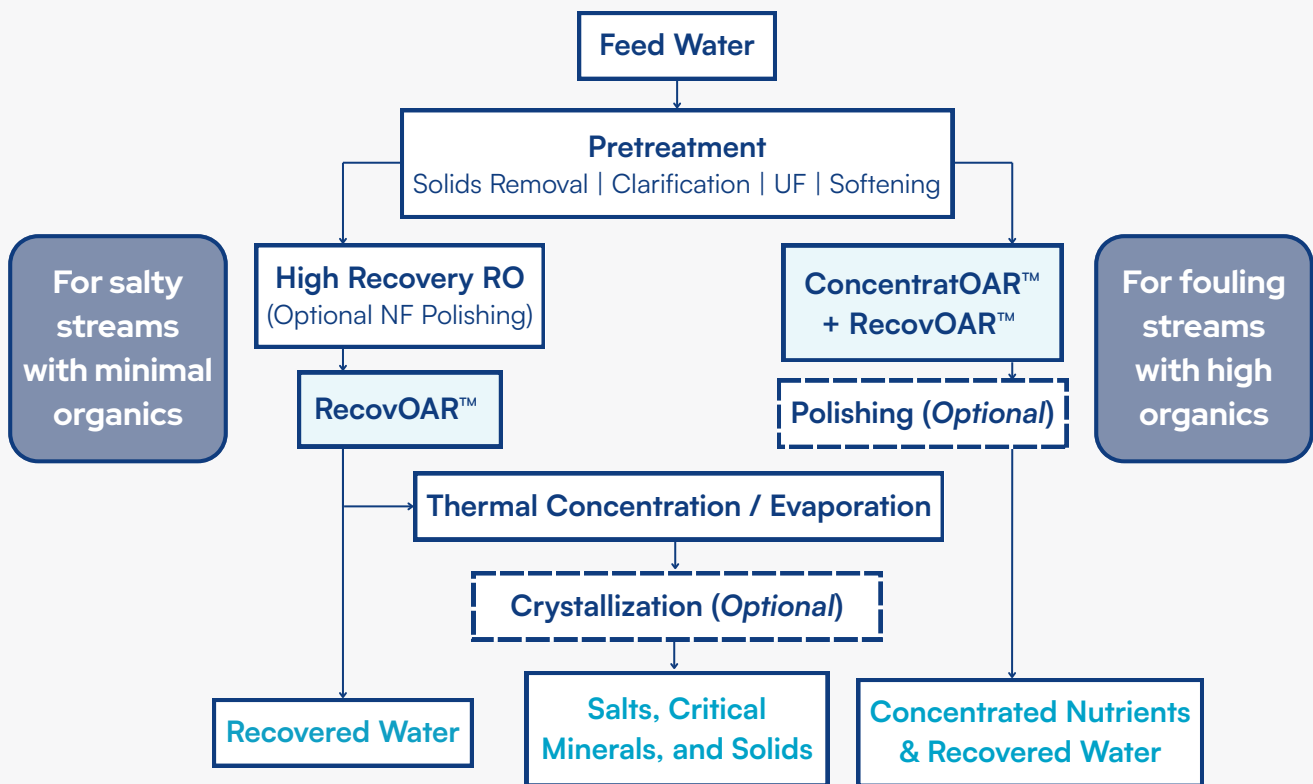
Core Performance Benefits:

- Volume reduction of challenging streams
- Water quality comparable to SWRO permeate
- Resistant to fouling, abrasions, and chlorine
- 75-90% water recovery from brine
- Consumes 5-15 kWh/m³ of feed water

Target Applications:

- Nutrient recovery from biogas digestate
- High-organic industrial wastewater treatment
- Landfill leachate treatment
- Water recovery from mining waste

The Full Flowsheet Solution



Aquatech's integrated flowsheet spans pretreatment through mineral product — with FTS H2O membrane technologies eliminating or optimizing the thermal step(s). Technologies are available as fully integrated Aquatech systems or as licensed, pre-engineered modular units.

One Portfolio. One Flowsheet. One Accountable Partner.



The only full flowsheet.

Besides Aquatech, no other provider combines high-recovery RO, OARO, forward osmosis, vacuum membrane distillation, evaporation, and crystallization in one contract.



Membrane technology proven at commercial scale.

RecovOAR™ is not a demonstration-stage technology. It has operating commercial installations across five industry sectors on multiple continents.



Global delivery, local presence.

Aquatech has executed projects in over 60 countries across 45+ years. FTS H2O technologies are available as fully integrated EPC solutions or as licensed modular units.



Center of Excellence for membrane brine concentration.

FTS H2O's facility in Albany, Oregon, is Aquatech's global R&D and application engineering hub for OARO, FO, and membrane brine concentration.



RecovOAR™: Proven Across Industries and Geographies



Lithium Processing & Concentration

Location: China

Application: OARO-based brine concentration process that uses an integrated, water-based system to efficiently isolate and concentrate valuable resources from waste brine. This innovative approach replaces land-intensive methods with a scalable, controlled solution that maximizes lithium yield.

Seawater Brine Mining / Resource Recovery

Location: Saudi Arabia

Application: Full-scale demonstration facility converting desalination brine waste into recoverable salt and mineral products. Delivered as part of a brine valorization program at one of the world's leading desalination research and development hubs.



Power Generation / Industrial ZLD

Location: Global (Multiple Installations)

Application: High-recovery brine concentration integrated into zero liquid discharge flowsheets for power and chemicals sector customers. The closed-loop system reduces the need for downstream thermal evaporation, reducing customer OPEX and improving environmental sustainability.

RecovOAR™ has been deployed at large-scale commercial installations across power generation, chemicals, produced water, semiconductor manufacturing, and lithium processing. ConcentratOAR™ is commercially deployed across chemical industry, industrial effluent, and biogas applications. Combined, the FTS H2O technology portfolio represents the most commercially diverse OARO/FO implementation record in the industry.

Talk to our team about feed characterization, technology selection, and conceptual flowsheet development for your project.

Learn more about the
RecovOAR™ process:

