

Self-Regulating FO-RO Hybrid Systems

Project Scope:

Demonstrate the self-stabilizing behavior of a desalination regime which replaces complex, large-footprint pretreatment with forward osmosis (FO). Show that recycling of RO retentate into FO draw solution maintains FO osmotic gradient, yielding a system which can sustain steady state operation with minimal controls and input.

Operating Limits:

Source	Minimum	Maximum
Flow Rate	3.8 L/min	11.4 L/min
Tank Capacity	0 L	60.5 L
Temperature	20 °C	30 °C
RO Pressure	Ambient	700 psi / 48 bar
FO Draw Salinity	> 0 M	0.85 M

Chemicals and Hazards:

Name	Hazard	Mitigation	PPE
Sodium chloride	Corrosive	Containment tubs	Safety glasses
High pressure	Risk of injury	Containment shields	Safety glasses