




Improvements in green technologies

NEW DEVELOPMENTS IN SULPHATE REMOVAL & CONCENTRATION (SRCS) MEMBRANE SYSTEM & RO AND NF MEMBRANES FOR ZERO LIQUID DISCHARGE (ZLD)

Presented By,
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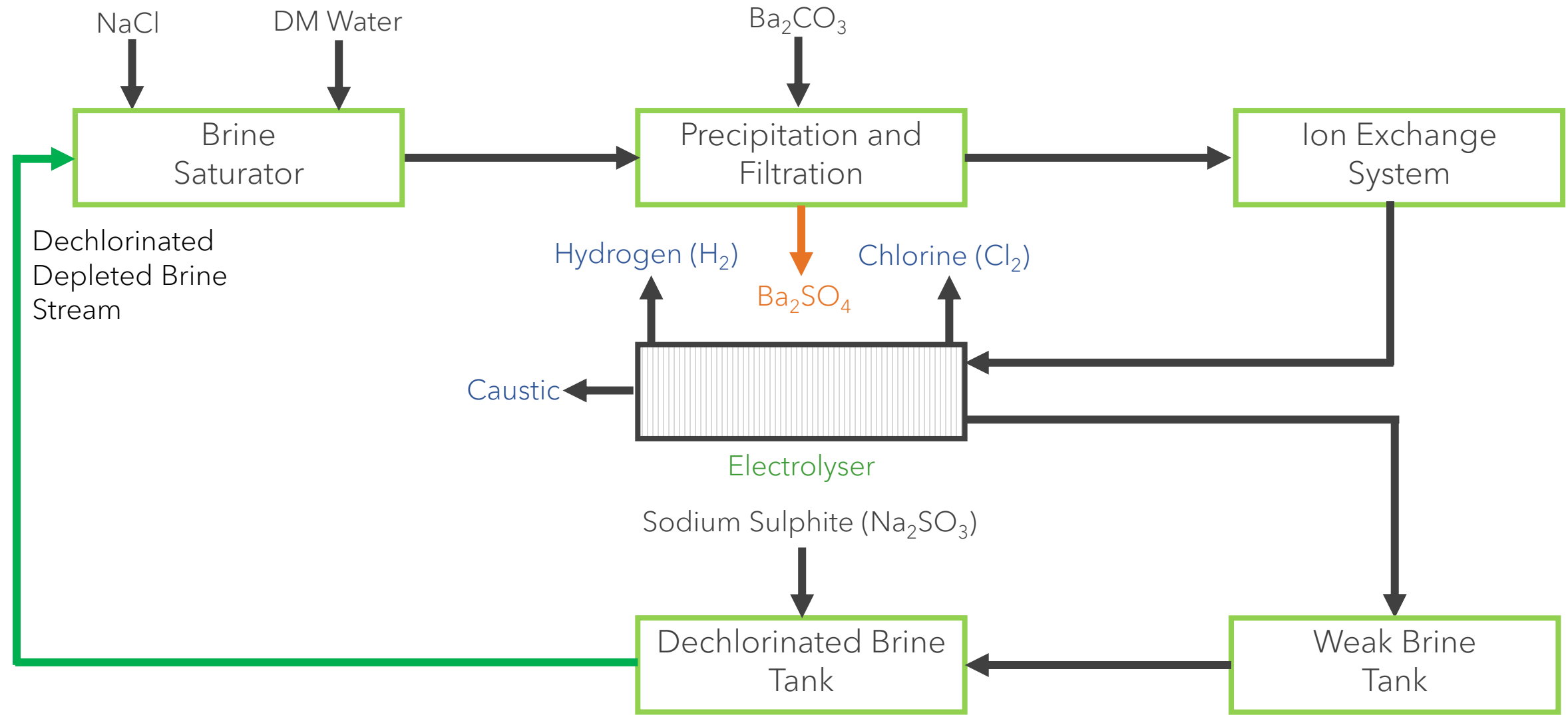
AGENDA

- Introduction to the new Generation 3 - XSTREME Sulphate Rejection Membranes, it's case studies and results
- Introduction to new Generation Reverse Osmosis (RO) Membranes in Zero Liquid Discharge (ZLD) and it's case studies
- Application of Nanofiltration (NF) membrane in ZLD for minimal sizing of MEE to attain maximum water recovery from effluent

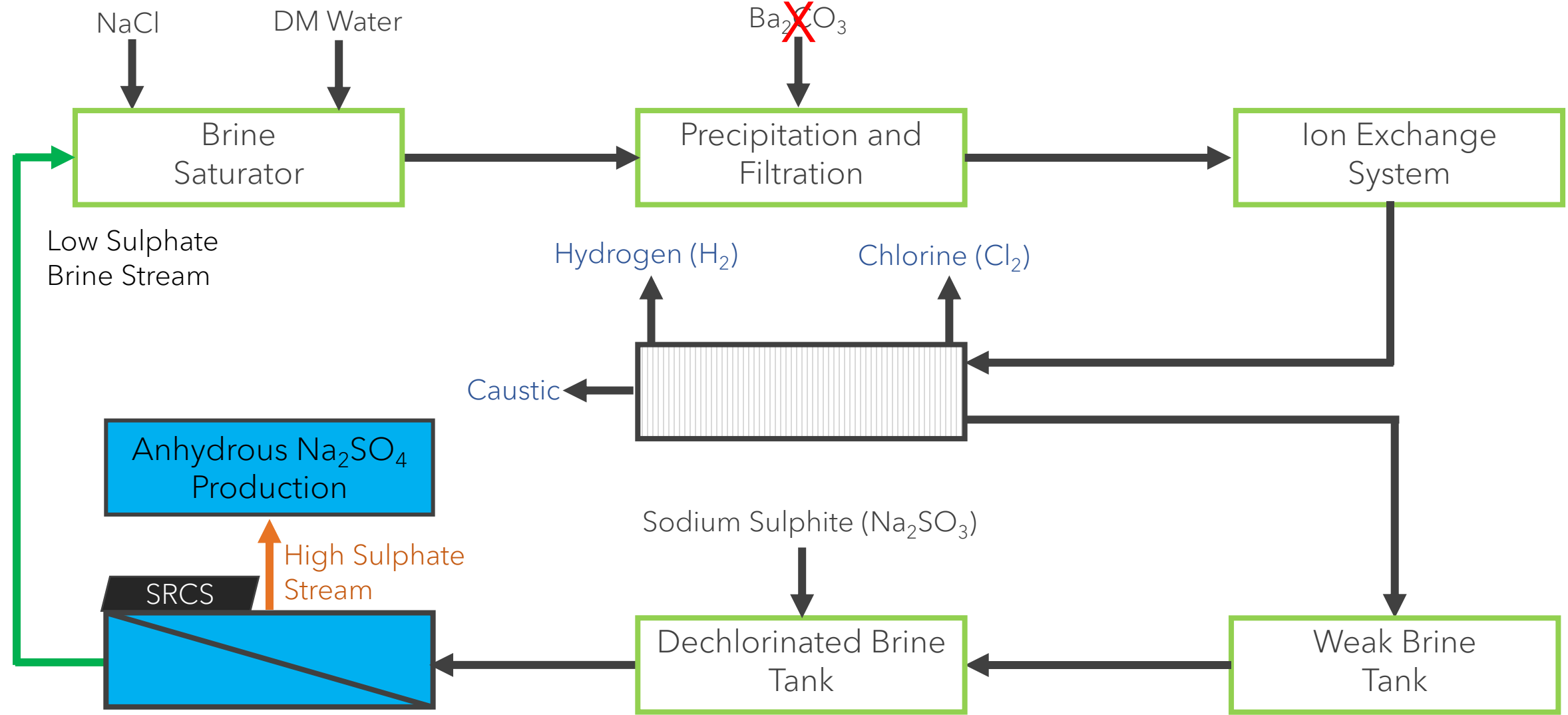


NEW DEVELOPMENTS IN SULPHATE REMOVAL & CONCENTRATION (SRCS) MEMBRANE SYSTEM

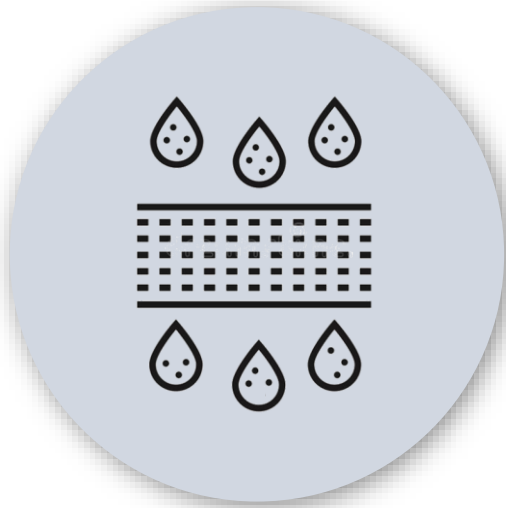
ABOUT THE TECHNOLOGY



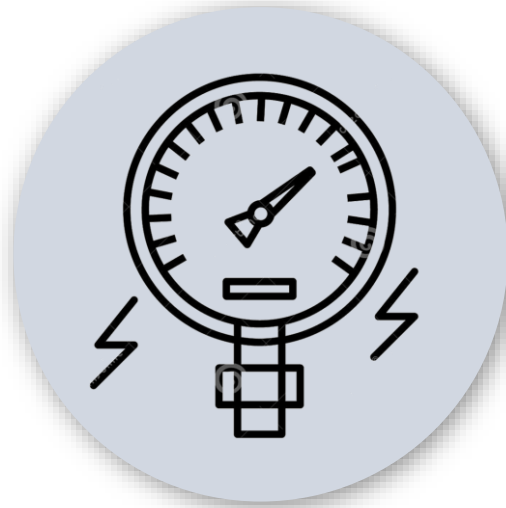
ABOUT THE TECHNOLOGY



THE PROBLEMS



Increase in passage
of sulphate salts

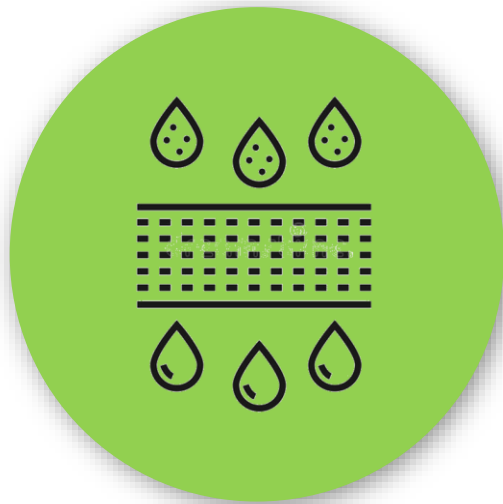


Increase in
operating pressure



Higher OPEX

OUR SOLUTIONS



High Sulphate
Rejection
membranes

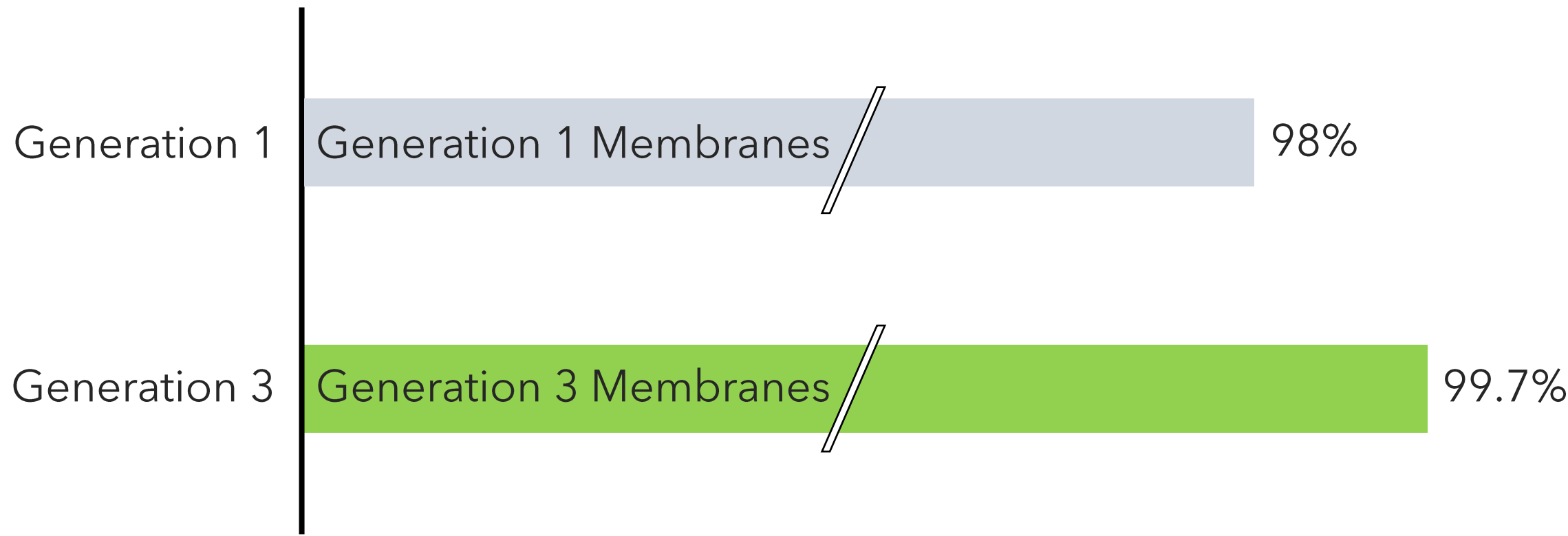


Greater flexibility
in operating
pressure



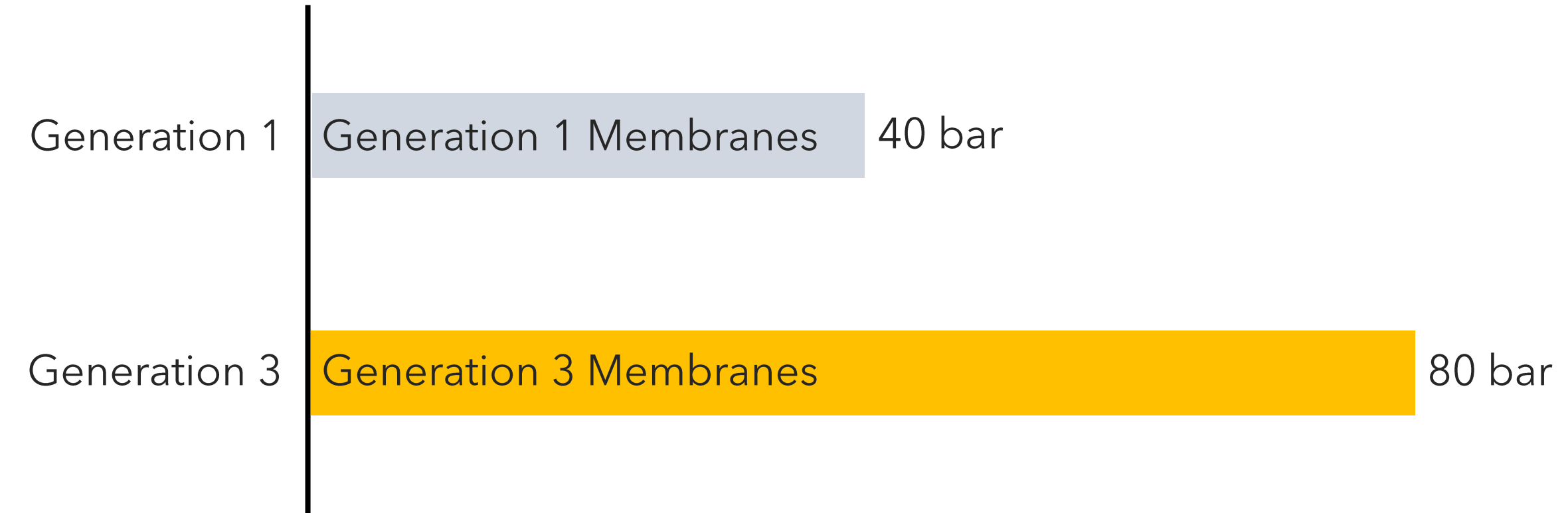
Lower OPEX

IMPROVEMENTS IN SRCS MEMBRANE SULPHATE REJECTION



Rejection is recorded under Standard Test Conditions of 2,000 ppm MgSO₄, 110 psig (0.76 MPa) Applied Pressure, 25 °C Operating Temperature, 15% Permeate Recovery

IMPROVEMENTS IN SRCS MEMBRANE OPERATING PRESSURE

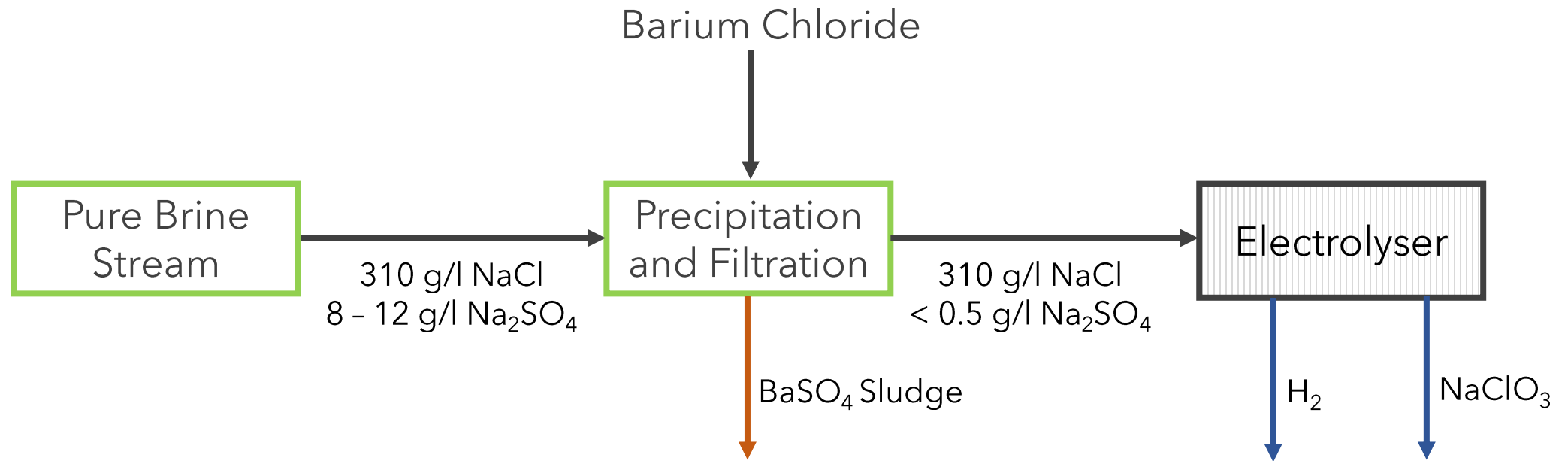


Note: For temperature < 35 °C

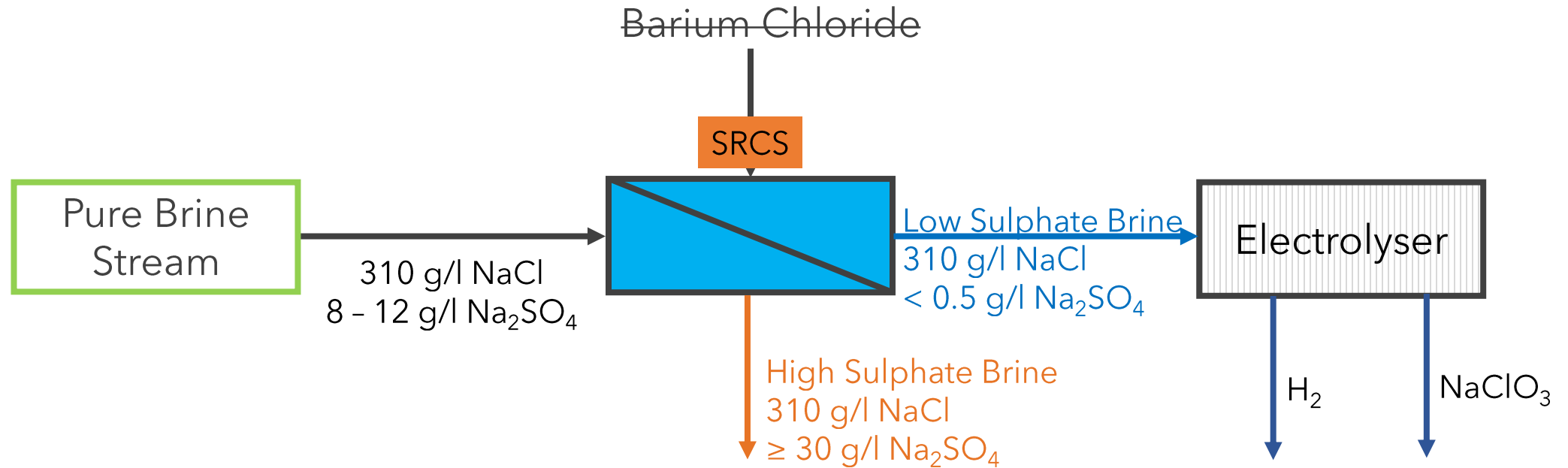
IMPROVEMENTS IN SRCS MEMBRANE

OPEX CASE STUDY: APPLICATION IN PURE BRINE

CASE STUDY: PURE BRINE STREAM



CASE STUDY: PURE BRINE STREAM



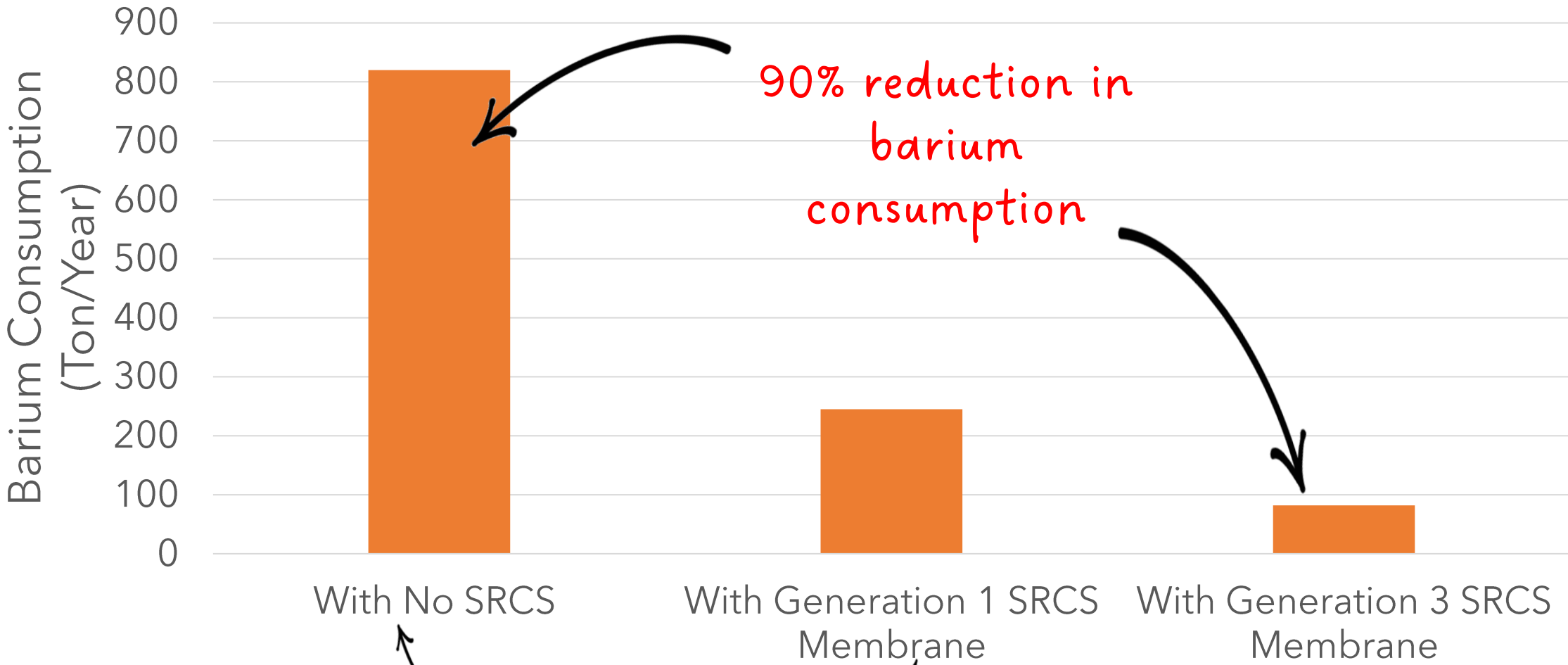
CASE STUDY: PURE BRINE STREAM

Parameters	Units	With no SRCS in place	With Generation 1 SRCS Membrane	With Generation 3 SRCS Membrane
Feed Na ₂ SO ₄ concentration	g/l	10	10	10
Post Treatment Na ₂ SO ₄ concentration	g/l	0.5	3	0.5
Barium Consumption	Ton/year	820	245	82
OPEX Savings	€/year	-	€ 304,000	€ 395,000

Note: No of days of operation is 350 days, Cost of Barium Salt € 0.5 per kg

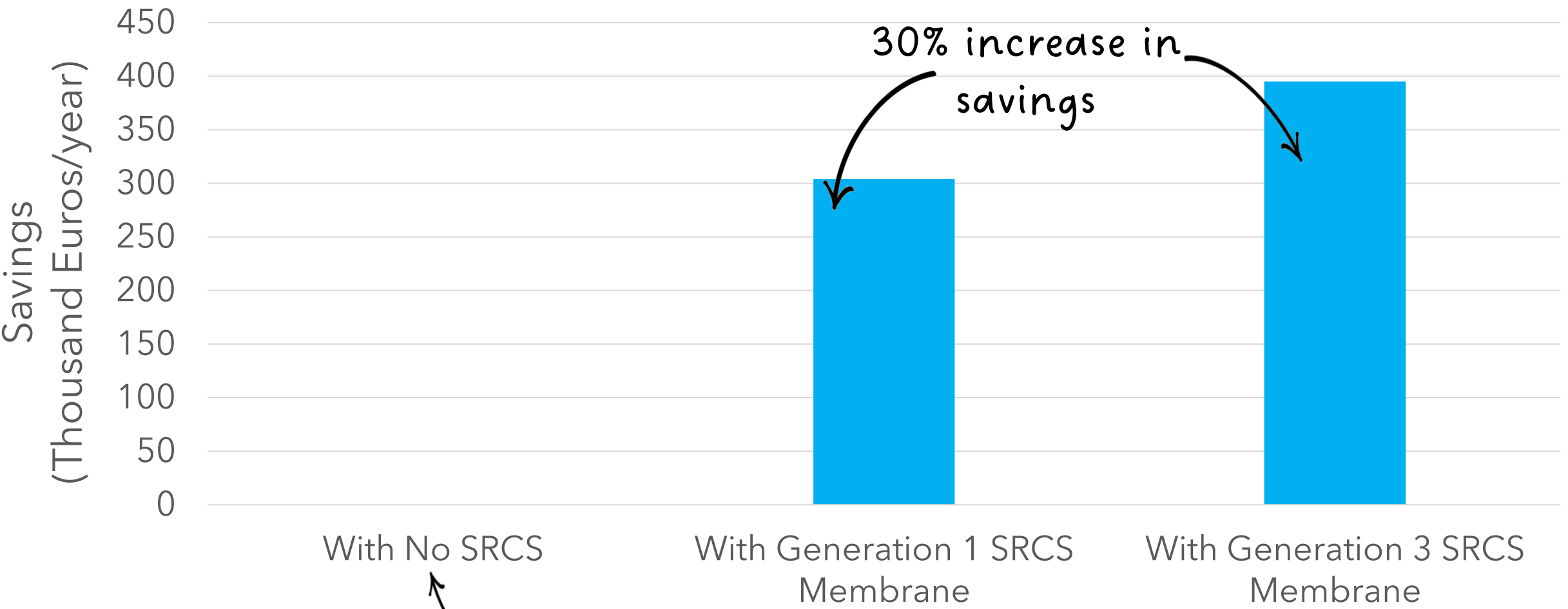
CASE STUDY: PURE BRINE STREAM

Barium Consumption (Ton/year) v/s. Technology Upgradation



CASE STUDY: PURE BRINE STREAM

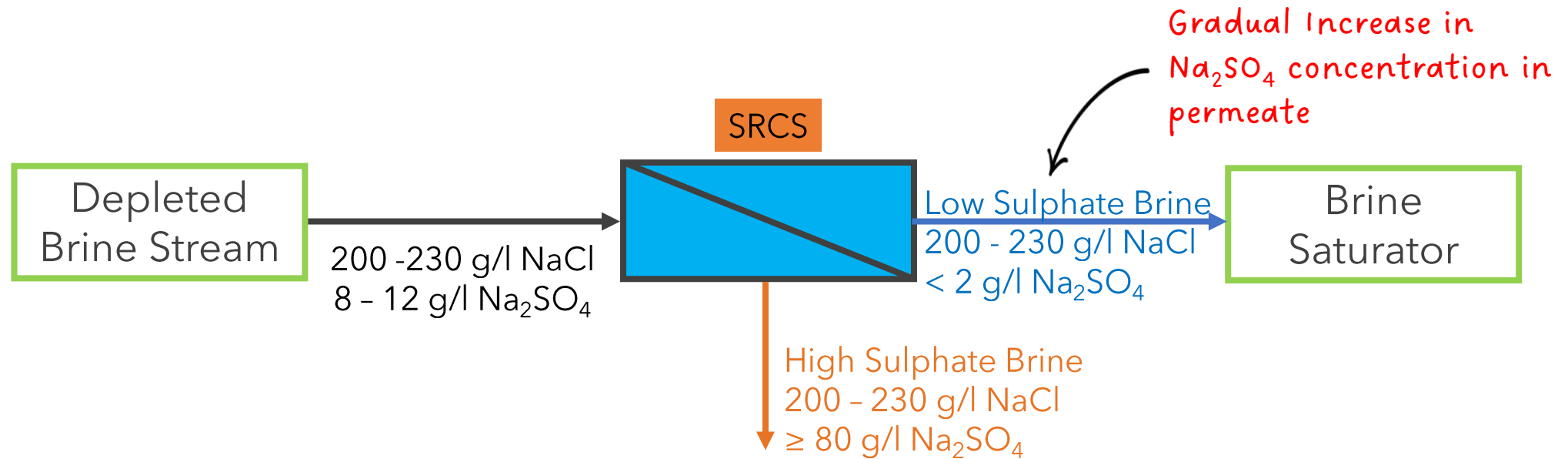
OPEX Savings (Thousand Euros/year) v/s. Technology Upgradation



IMPROVEMENTS IN SRCS MEMBRANE

OPEX CASE STUDY: APPLICATION IN DEPLETED BRINE

CASE STUDY: DEPLETED BRINE STREAM



CASE STUDY: DEPLETED BRINE STREAM

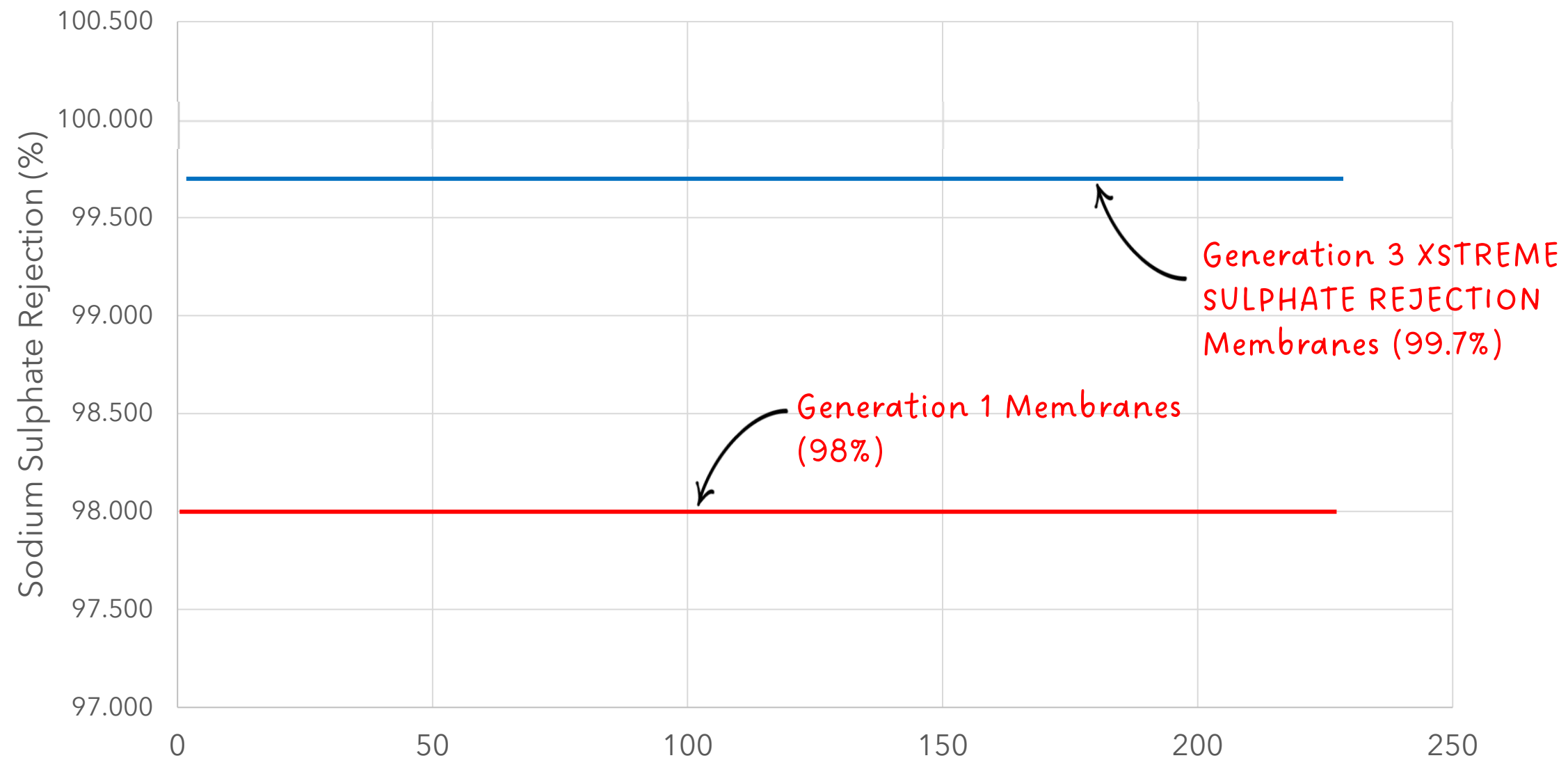
Case: Increase in permeate Na_2SO_4 concentration by 0.5 GPL in 8 TPD SRCS

Parameters	Unit	Normal Value	Increase in permeate Na_2SO_4 concentration by 0.5 GPL
When permeate GPL	GPL	2	2.5
Separation Capacity	kg/day	8000	7560
Extra Na_2SO_4 to be removed	kg/day	-	440
Barium to be consumed	kg/day	-	860
Cost of Barium consumption	€/month	-	€ 12,900/-
Sludge Disposal Cost	€/month	-	€ 800/-
Total Cost per month	€ /month	-	€ 13,700/-
Savings over 6 months*	Euros	-	€ 82,000/-

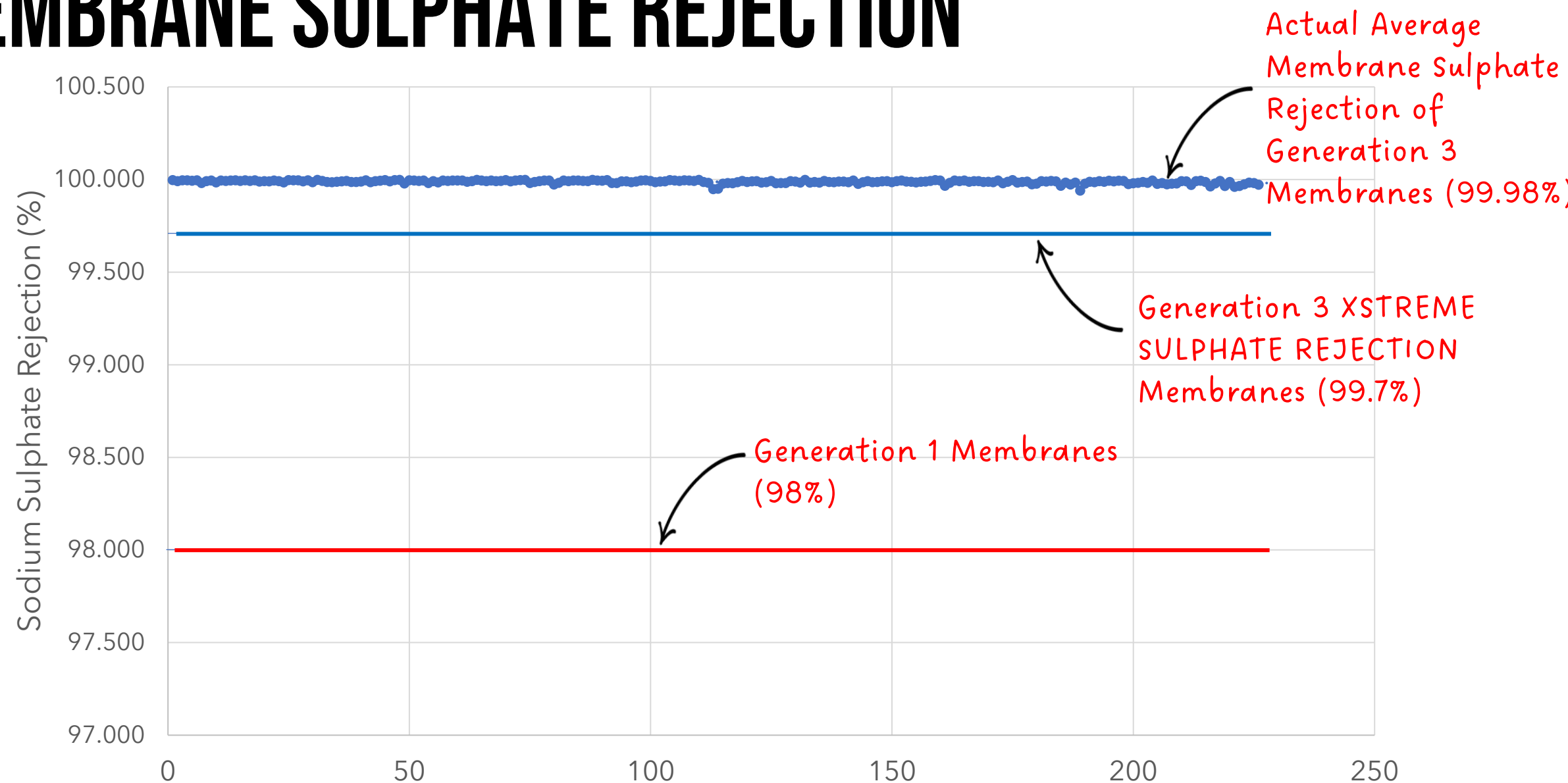
Note: For calculation purposes Sludge Disposal Cost € 27 per ton, Cost of Barium Salt € 0.5 per kg, Reaction Efficiency of Barium 75% *Post 1.5 years of operation . Costs may slightly differ based on geographies and procurement cost

IMPROVEMENTS IN SRCS MEMBRANE RESULTS OF GEN 3 XSTREME SULPHATE REJECTION MEMBRANES

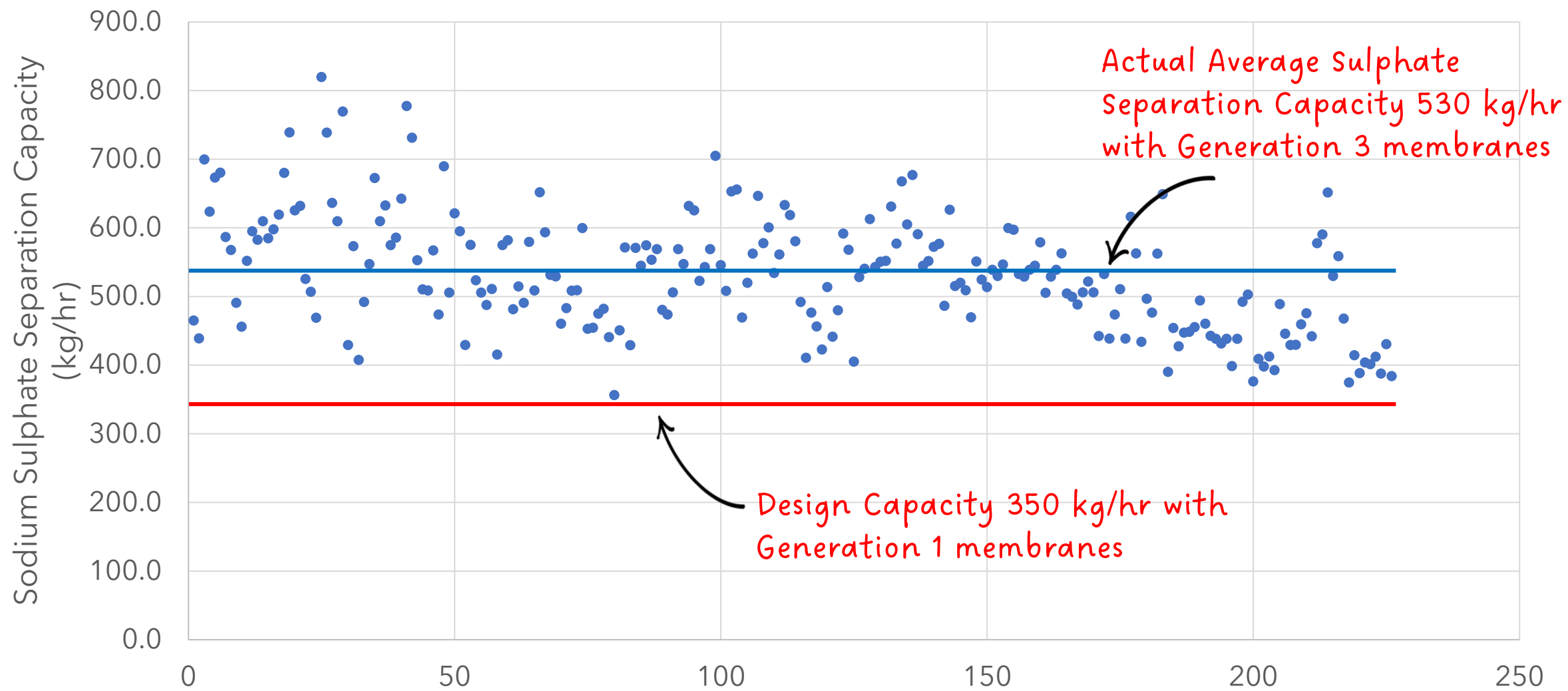
MEMBRANE SULPHATE REJECTION



MEMBRANE SULPHATE REJECTION



SODIUM SULPHATE SEPARATION CAPACITY



CLIMATE NET NEUTRALITY WITH GEN 3 X-SRCS

- Eliminate heavy chemical use – Drastically cut Scope 1 and 3 emissions.
- Adopt clean membrane-based technology – Reduce Scope 2 dependency.
- Recover and upcycle sulphate as Anhydrous Na_2SO_4 – build a zero-waste circular economy.
- Promote green branding – position as a sustainable chemical manufacturer in a carbon-sensitive global market.



IMPROVEMENTS IN GREEN TECHNOLOGIES ZLD APPLICATION OF RO & NF MEMBRANES IN CHLOR-ALKALI INDUSTRY

DEVELOPMENTS IN RO MEMBRANE

**LOW FOULING,
HIGH REJECTION
RO MEMBRANE**

**LOW FOULING,
HIGH PRESSURE
RO MEMBRANE**

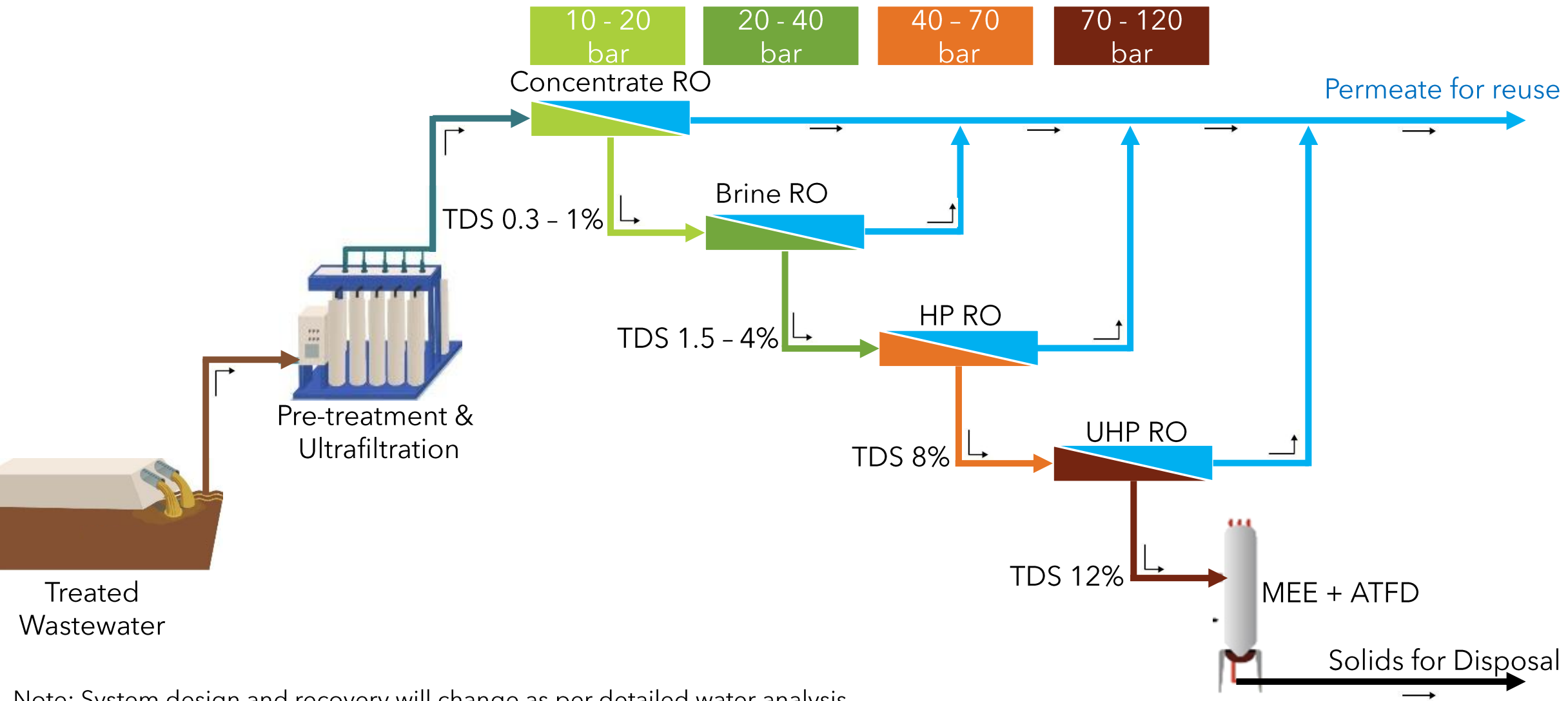
**ULTRA
HIGH PRESSURE
RO MEMBRANE**

IMPROVEMENTS IN GREEN TECHNOLOGIES

CASE STUDY:

ZLD APPLICATION IN CHLOR-ALKALI INDUSTRY

ZLD IN CHLOR - ALKALI INDUSTRY – UHP RO APPLICATIONS



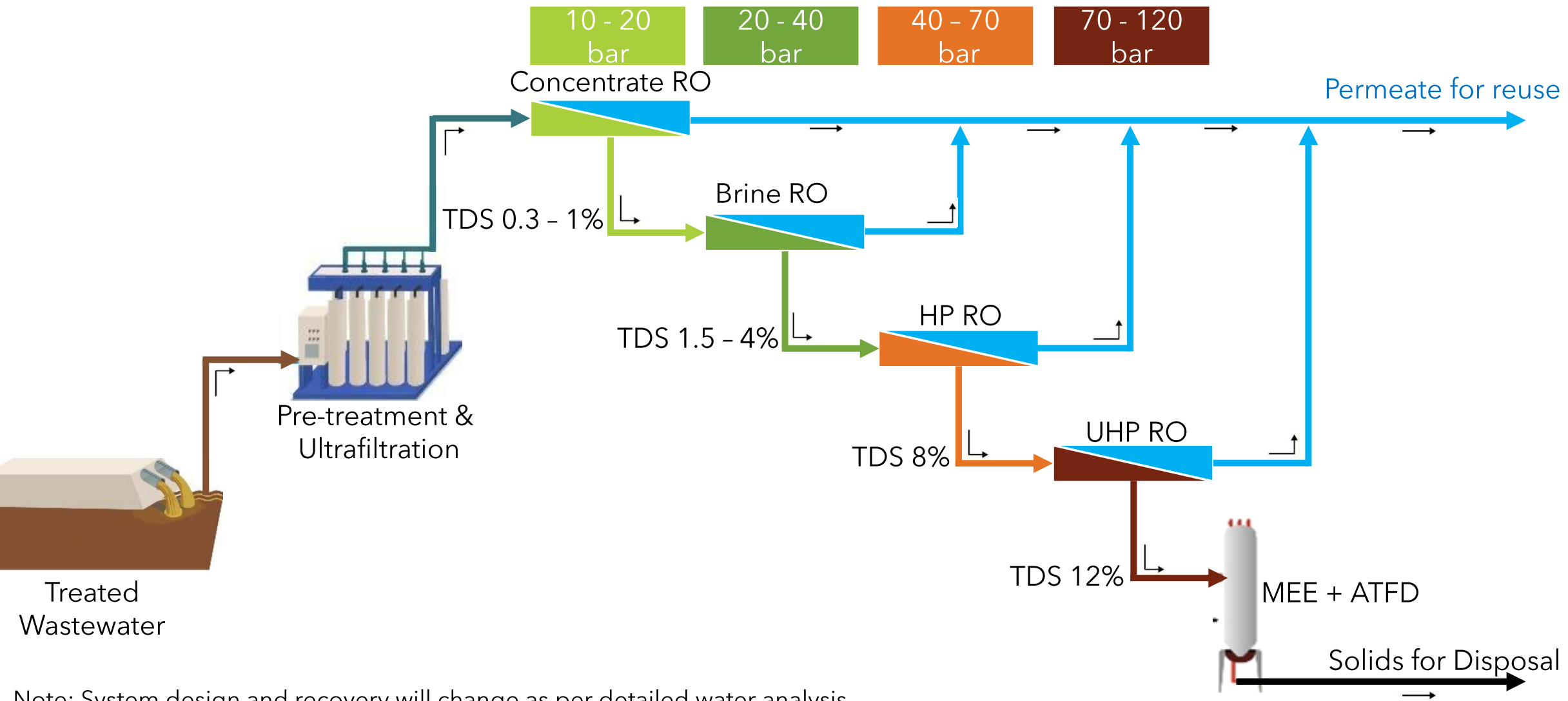
Note: System design and recovery will change as per detailed water analysis

CASE STUDY: ULTRA HIGH PRESSURE RO

Parameters	Unit	Value
Reject flow before installation of UHP RO	m ³	12
Reject flow after installation of UHP RO	m ³	8
Evaporator operating cost per m ³ of feed	€/hour	20
Evaporator operating cost before UHP RO installation	€/hour	240/-
Evaporator operating cost after UHP RO installation	€/hour	160/-
Operating Cost for UHP RO	€/hour	1/-
Net Savings	€/year	€ 553,000/-
Payback period	.	3 months

Note: Costs may slightly differ based on geographies, OPEX and procurement cost

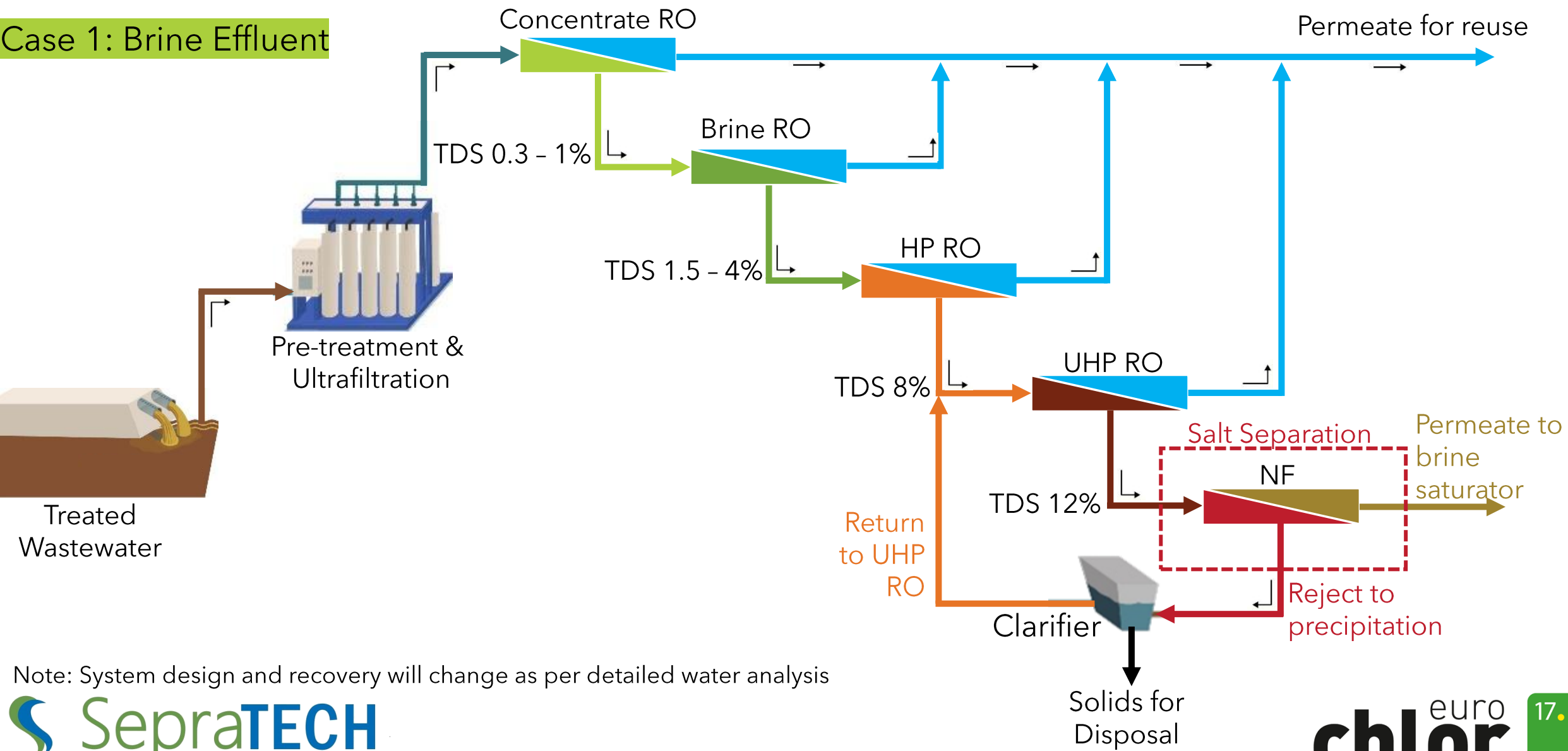
ZLD IN CHLOR - ALKALI INDUSTRY – UHP RO APPLICATIONS



Note: System design and recovery will change as per detailed water analysis

ZLD IN CHLOR - ALKALI INDUSTRY - NF APPLICATIONS

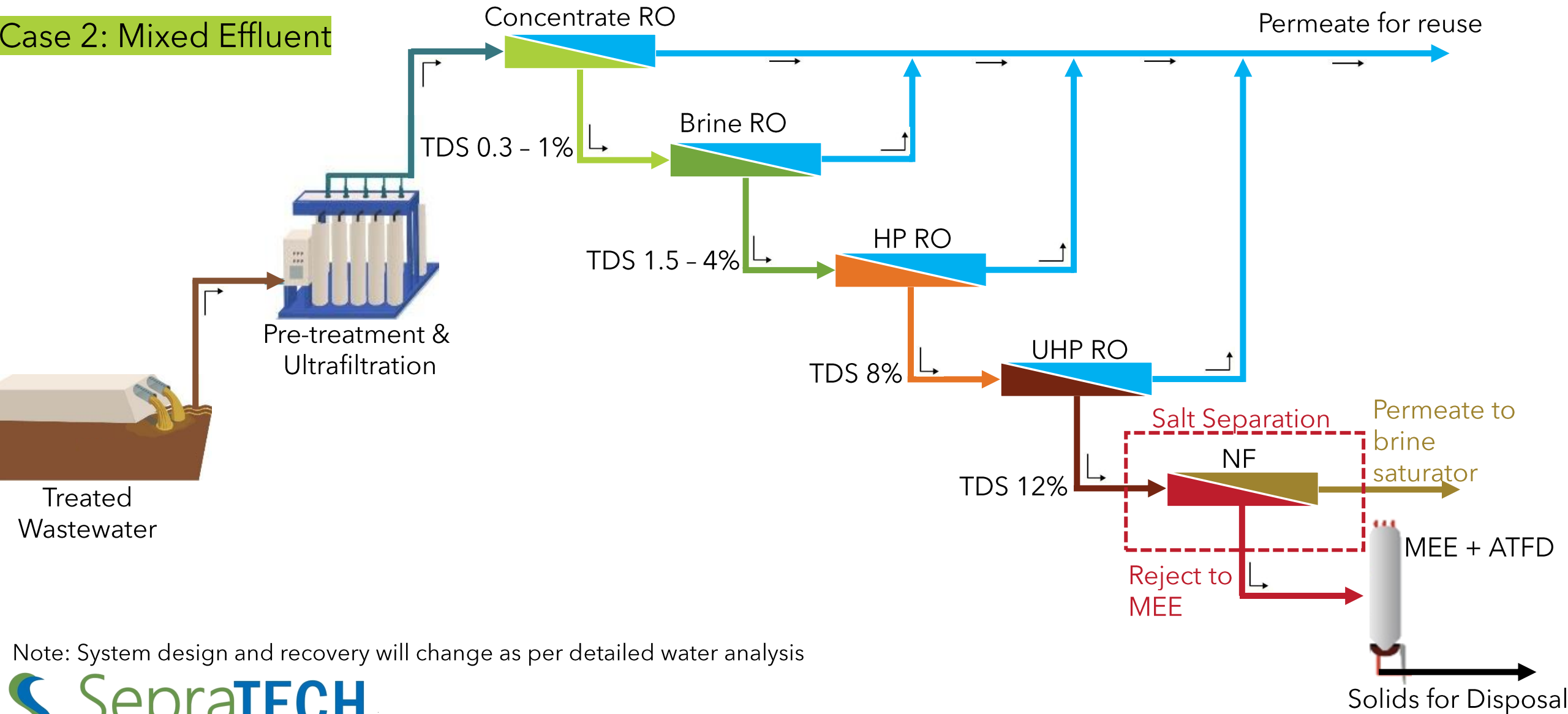
Case 1: Brine Effluent



Note: System design and recovery will change as per detailed water analysis

ZLD IN CHLOR - ALKALI INDUSTRY - NF APPLICATIONS

Case 2: Mixed Effluent



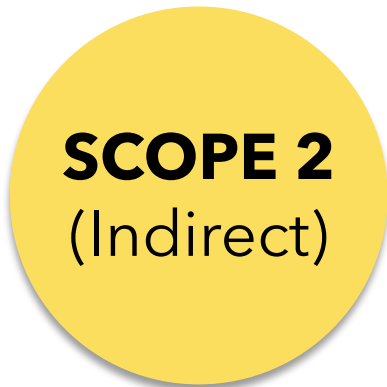
Note: System design and recovery will change as per detailed water analysis

CASE STUDY: ULTRA HIGH PRESSURE RO + NF

Parameters	Unit	Value
Reject flow before installation of UHP RO	m ³ /hr	12
Reject flow after installation of UHP RO	m ³ /hr	8
Permeate flow of NF	m ³ /hr	6
Reject flow to Evaporator (Reject of NF)	m ³ /hr	2
Evaporator operating cost per m ³ of feed	€/hour	20
Evaporator operating cost before UHP RO + NF installation	€/hour	240/-
Evaporator operating cost after UHP RO + NF installation	€/hour	40/-
Operating Cost for UHP RO + NF	€/hour	3/-
Net Savings	€/year	1,379,000/-
Payback period	.	3 months

Note: Costs may slightly differ based on geographies, OPEX and procurement cost

CLIMATE NET NEUTRALITY WITH UHP-RO & NF



#SMARTMEMBRANE SOLUTIONS

For more info talk with our experts at info@sepratech.in
Or Call us at +91-95866 82289

WHO ARE WE ?

WE ARE A DESIGN, ENGINEERING, MANUFACTURING COMPANY PROVIDING TURNKEY SOLUTIONS FOR



PROCESS APPLICATION SYSTEMS



WATER TREATMENT SYSTEMS



WASTEWATER TREATMENT SYSTEMS





SEPRATECH

**THE ONLY MANUFACTURER AND
SUPPLIER OF SULPHATE REMOVAL
& CONCENTRATION SYSTEM
(SRCS) FOR BOTH DEPLETED
BRINE AND PURE BRINE**

SEPRATECH

SUPPLIER OF INDIA'S LARGEST
SRCS WITH SEPARATION
CAPACITY OF 1000 KGH





SEPRATECH

**SUPPLIER OF SRCS FOR INDIA'S
LARGEST SINGLE LOCATION
CAUSTIC SODA MANUFACTURER**

SEPRATECH

MORE THAN 75% MARKET SHARE IN
THE SULPHATE REMOVAL TECHNOLOGY
IN INDIA

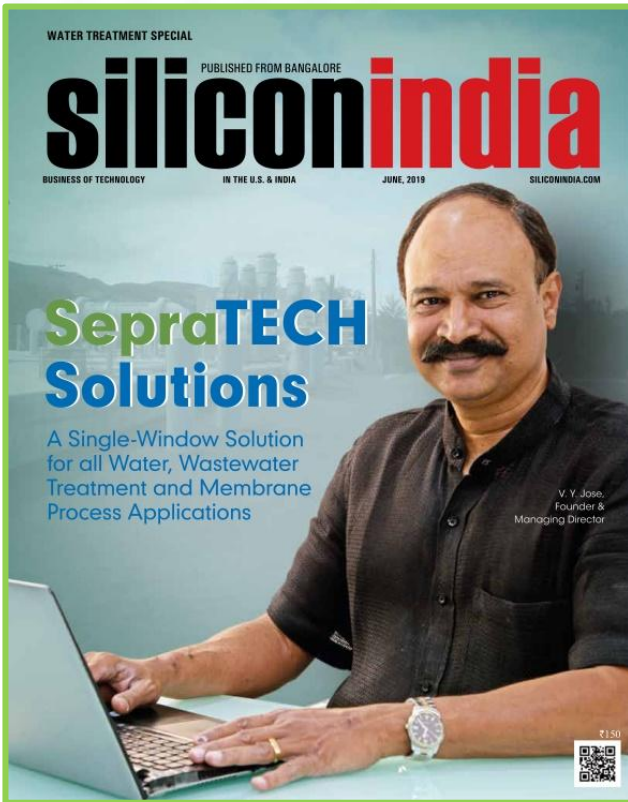


OUR ACHIEVEMENTS

Top 10 Promising
Water Treatment
Companies of India

SepraTECH was awarded the Sustainability Innovation
Challenge Award in recognition of its Zero Liquid
Discharge System for industrial wastewater system

Top 10 Promising
Wastewater Treatment
Companies of India



OUR SOLUTIONS FOR THE CHLOR ALKALI INDUSTRY



Generation-3 Sulphate
Removal &
Concentration System
(SRCS)



Ceramic Membrane
System for Brine
Purification

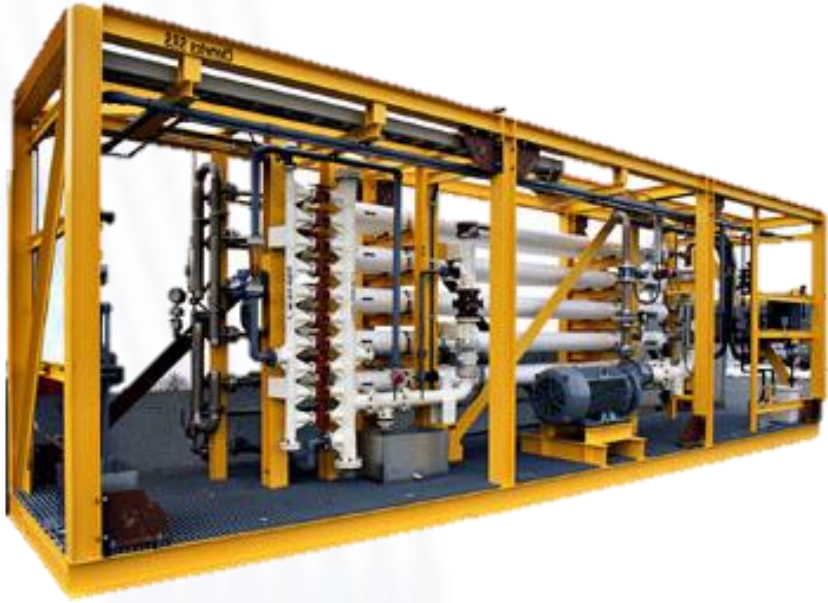


Water & Wastewater
Treatment, Zero Liquid
Discharge (ZLD)
Systems

OUR SOLUTIONS FOR THE CHLOR ALKALI INDUSTRY



Generation-3 Sulphate
Removal &
Concentration System
(SRCS)



GENERATION 3 XSTREME SULPHATE REMOVAL AND CONCENTRATION MEMBRANE SYSTEM

OUR SOLUTIONS FOR THE CHLOR ALKALI INDUSTRY

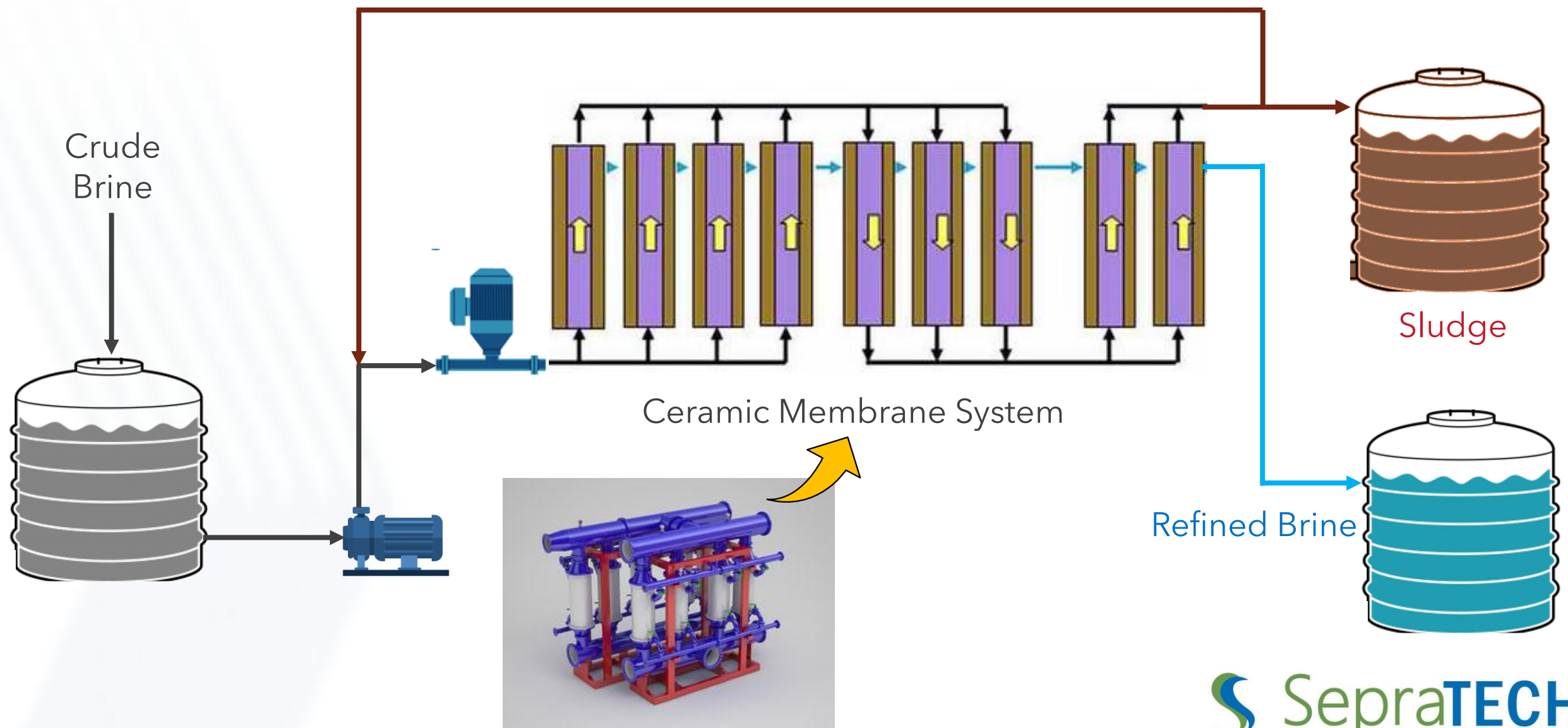


Ceramic Membrane
System for Brine
Purification



CERAMIC MEMBRANE FILTRATION FOR BRINE REFINING

CERAMIC MEMBRANE SYSTEMS FOR BRINE REFINING



CERAMIC MEMBRANE SYSTEMS FOR BRINE REFINING



Crude
Brine

Refined
Brine

- Stable and high quality of refined primary brine
- Simple process for primary brine refining, which can reduce equipment investment
- Wide adaptability to different salts be it washed salt or non-washed salt
- Benefits for better operating life of ion exchange resin and membrane
- Lower additives and chemical consumption
- Convenience for maintenance and operation, low labour cost.
- Lower floor space, convenience for upgrading and capacity expansion.

CERAMIC MEMBRANE SYSTEMS FOR BRINE REFINING



OUR SOLUTIONS FOR THE CHLOR ALKALI INDUSTRY



Generation-3 Sulphate
Removal &
Concentration System
(SRCS)



Ceramic Membrane
System for Brine
Purification



Water & Wastewater
Treatment, Zero Liquid
Discharge (ZLD)
Systems

OUR SOLUTIONS FOR THE CHLOR ALKALI INDUSTRY



Water & Wastewater
Treatment, Zero Liquid
Discharge (ZLD)
Systems



MEMBRANE SOLUTIONS FOR WATER & EFFLUENT TREATMENT

WASTEWATER TREATMENT SYSTEMS



WASTEWATER TREATMENT SYSTEMS



WASTEWATER TREATMENT SYSTEMS



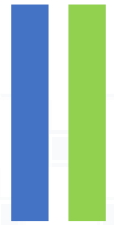
VISIT US AT STALL 43



“Impacting Solutions through Innovation”

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