LG Chem

2024-07-26 12:21:16

v3.3.0.2

Project name:		**Water type:**	Desalro 2.0 agr	**Membrane age:**	0
Customer:		**Flux loss per year:**	5.00%	**Safety factor:**	1
Username:		**Salt passage increase:**	5.00%		

Overall System

Total permeate flow:	2,500 m3/d	**Water source:**	Seawater-Well (SDI<3)	**Feed pressure:**	56.3 bar (1P)
Raw water flow:	6,250 m3/d	**Raw water TDS:**	38,764.02 mg/L		
Total concentrate flow:	3,750 m3/d	**Feed osmotic pressure:**	27.23 bar		
Overall recovery:	40 %	**Concentrate osmotic pressure:**	45.93 bar		

System - Pass1

Permeate flow:	2,500 m3/d	**Average flux:**	10.11 lmh	**Temperature:**	19 °C
RO feed flow:	6,250 m3/d	**Water source:**	Seawater-Well (SDI<3)	**Average NDP:**	16.6 bar
Concentrate flow:	3,750 m3/d	**Feed TDS:**	39,240.81 mg/L	**Specific energy:**	2.16 kWh/m³
Recovery:	40 %	**Feed osmotic pressure:**	27.57 bar	**Feed pressure:**	56.3 bar
Number of elements:	252	**Concentrate osmotic pressure:**	45.93 bar	**Permeate TDS:**	106.07 mg/L
ERD type:	Isobaric	**Pump efficiency:**	88.8 %	**Fouling factor:**	1
Recirculation:					

	# of vessels	# of elements	RO feed flow	Permeate flow	Conc. flow	RO feed pressure	Conc. pressure	Vessel DP	Boost pressure	Back pressure	Inter-stage pressure loss	Average flux	Perm. TDS
			m3/d	m3/d	m3/d	bar	bar	bar	bar	bar	bar	lmh	mg/L
Stage 1	36	7	6,250	2,502.41	3,747.59	56.3	55.34	0.97	0	1	0	10.12	106.07

Water Analysis - Pass1

Species	Raw water	Adjusted feed	Conc. Stage1	Permeate Stage1
Ammonium	0.02	0.02	0.03	0.00
Sodium	11,863.40	12,009.32	20,003.06	37.98
Potassium	415.36	420.47	700.18	1.58
Magnesium	1,433.29	1,450.92	2,419.05	1.05
Calcium	468.66	474.43	790.99	0.34
Strontium	8.46	8.57	14.28	0.01
Barium	0.05	0.05	0.08	0.00
Fluoride	3.77	3.82	6.35	0.02
Chloride	21,406.05	21,669.34	36,097.09	62.48
Sulfate	2,928.23	2,964.25	4,943.02	0.86
Nitrate	2.17	2.20	3.64	0.05
Carbonate	0.44	0.44	0.73	0.00
Bicarbonate	134.66	136.32	226.87	0.71
Boron	4.94	5.00	7.87	0.71
Bromide	69.73	70.58	117.58	0.20
Silica	24.78	25.08	41.79	0.07
CO2	11.00	11.01	11.01	11.01
TDS	38,764.02	39,240.81	65,372.61	106.07
pH	7.15	7.15	7.35	5.05

Within Vessels - Pass1

	Position	RO feed flow	Permeate flow	Flux	Element recovery	Element DP	Net driving pressure	Polarization	Feed TDS	Perm. TDS
		m3/d	m3/d	lmh	%	bar	bar		mg/L	mg/L
Stage 1										
LG SW 440 SR	1	173.61	17.28	17.61	9.95	0.20	22.68	1.12	39,235.97	49.12
LG SW 440 SR	2	156.34	14.23	14.51	9.11	0.17	19.48	1.11	43,566.20	65.14
LG SW 440 SR	3	142.10	11.52	11.74	8.10	0.15	16.48	1.09	47,923.80	86.95
LG SW 440 SR	4	130.59	9.18	9.35	7.03	0.13	13.76	1.08	52,142.35	116.45
LG SW 440 SR	5	121.41	7.23	7.37	5.96	0.12	11.37	1.07	56,074.87	155.95
LG SW 440 SR	6	114.18	5.66	5.77	4.96	0.11	9.32	1.05	59,617.06	208.19
LG SW 440 SR	7	108.52	4.42	4.50	4.07	0.10	7.60	1.04	62,716.02	276.38

Solubility - Pass1

	Solubility calculation	
	Feed	Conc.
LSI	0.02	0.89
CaSO4	25.18 %	48.59 %
SrSO4	15.39 %	34.96 %
BaSO4	184.61 %	270.37 %
CaF2	191.29 %	918.45 %
SiO2	22.2 %	36.98 %
Stiff Davis Index	-1.56	-0.68

Warnings - Pass1

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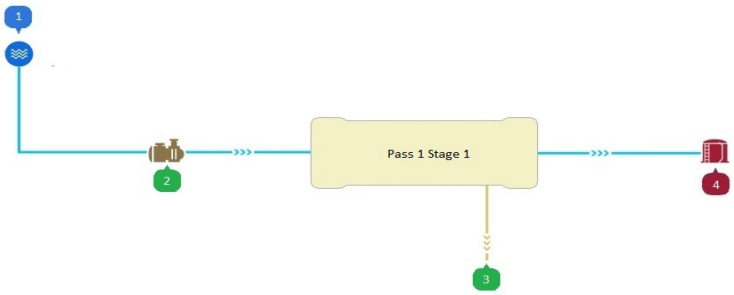

#	Stream	Flow (m3/d)	Pressure (bar)	TDS (mg/L)	pH
1	Raw Feed	6,250.00	0.00	38,764.02	7.15
2	1P RO Feed	6,250.00	56.30	39,240.81	7.15
3	1P Brine	3,750.00	55.34	65,372.61	7.35
4	1P Product	2,500.00	1.00	106.07	5.05