

Reverse Osmosis Antiscalant Proposal

Project Information	
Project Name/ Location:	Shanghai
Country of Installation:	CN
RO Designation:	
Prepared by:	Luo
Date:	17.7.17
Version:	1.0.69

Operating Parameters	设计
Feed Flow:	2400 m3/day
Product Flow:	1920 m3/day
Reject Flow:	480 m3/day
Recovery:	80 %
Concentration Factor (CF):	4.96
Type of Application:	Brackish Water Chinese
Assumed Salt Passage:	1 %
Temperature:	25 C

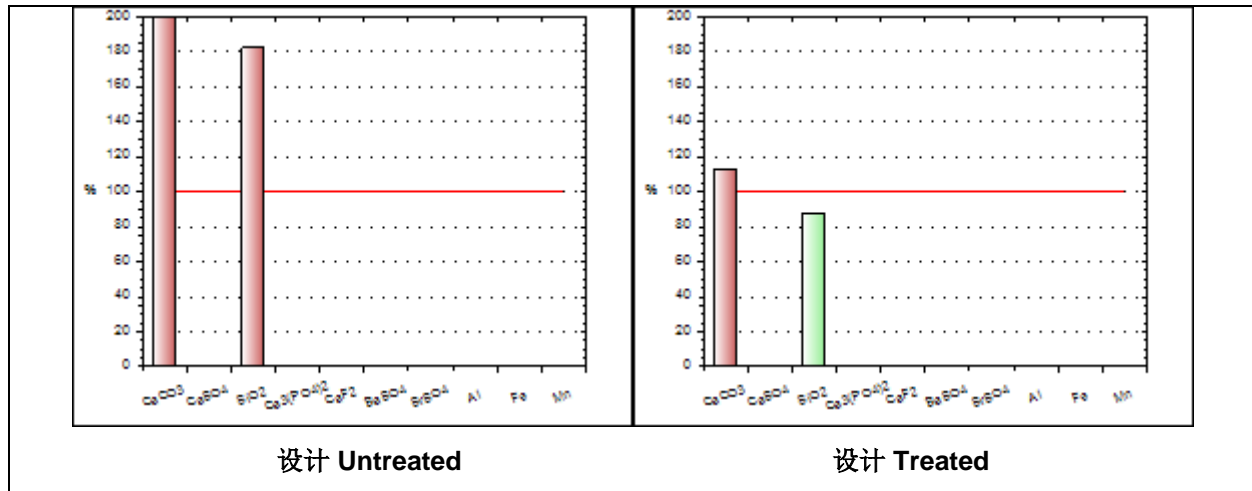
Water Chemistry	Unit	设计		
		Raw Water	Feed	Concentrate
Aluminum	ppm Al	0	0	0
Barium	ppm Ba	0	0	0
Calcium	ppm Ca	400.48	400.48	1986.38
Iron	ppm Fe	0	0	0
Magnesium	ppm Mg	121.42	121.42	602.23
Manganese	ppm Mn	0	0	0
Potassium	ppm K	0	0	0
Silica	ppm SiO2	50	50	248
Sodium	ppm Na	0	0	0
Orthophosphate	ppm PO4	0	0	0
Bromide	ppm Br	0	0	0
Chloride	ppm Cl	0	0	0
Nitrate	ppm Nitrate	0	0	0
Sulfate	ppm SO4	0	0	0
Bicarbonate	ppm HCO3	488	488	2411.34
Carbonate	ppm CO3	0.38	0.38	6.02
Fluoride	ppm F	0	0	0
Strontium	ppm Sr	0	0	0
Carbon dioxide	ppm CO2	68.89	68.89	71.93
pH		7	7	7.73
Ionic Strength		0.03	0.03	0.17

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Product Dosage Recommendation and Product Usage Details – 设计 Case

Product Selected: PC-510T	设计 Conditions
Dose in feed water for scale control:	4.38 ppm
Dose in feed water for iron/aluminum/manganese control:	0 ppm
Total feed water dose:	4.38 ppm
PermaTreat PC-510T in concentrate:	21.72 ppm
Daily requirement for PermaTreat PC-510T:	10.42 kg/day
Acid/ Alkali Daily Requirement:	0 kg/day
Daily Requirement of Acid/ Alkali in ppm:	0

<u>Scaling Indices</u>	<u>设计</u>			
Index Name	Feed Values	Concentrate Values	Untreated %	Treated %
CaCO3 SR	3.05	164.17	16417.49	113.22
CaSO4 SR	0	0	0	0
BaSO4 SR	0	0	0	0
SrSO4 SR	0	0	0	0
CaF2 SR	0	0	0	0
Fe Fouling	0	0	0	0
Al Fouling	0	0	0	0
Mn Fouling	0	0	0	0
SiO2 Fouling	0.4	1.82	182.26	87.63
Ca3(PO4)2 Fouling	0	0	0	0



All queries and requests for additional information can be made to:

Nalco Company - PermaCare products

E-mail: ask@nalco.com

Web site: www.permacare.com

North America (+1) 630 305 1000, South America (+55) 11 5644 6500,

Europe (+31) 71 524 1100, Pacific (+65) 686 14011



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Since the conditions in which the PermaTreat antiscalants may be used are outside our control, We cannot warranty the results obtained.

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Operating Parameters	如果
Feed Flow:	2285.71 m3/day
Product Flow:	1920 m3/day
Reject Flow:	365.71 m3/day
Recovery:	84 %
Concentration Factor (CF):	6.2
Type of Application:	Brackish Water Chinese
Assumed Salt Passage:	1 %
Temperature:	25 C

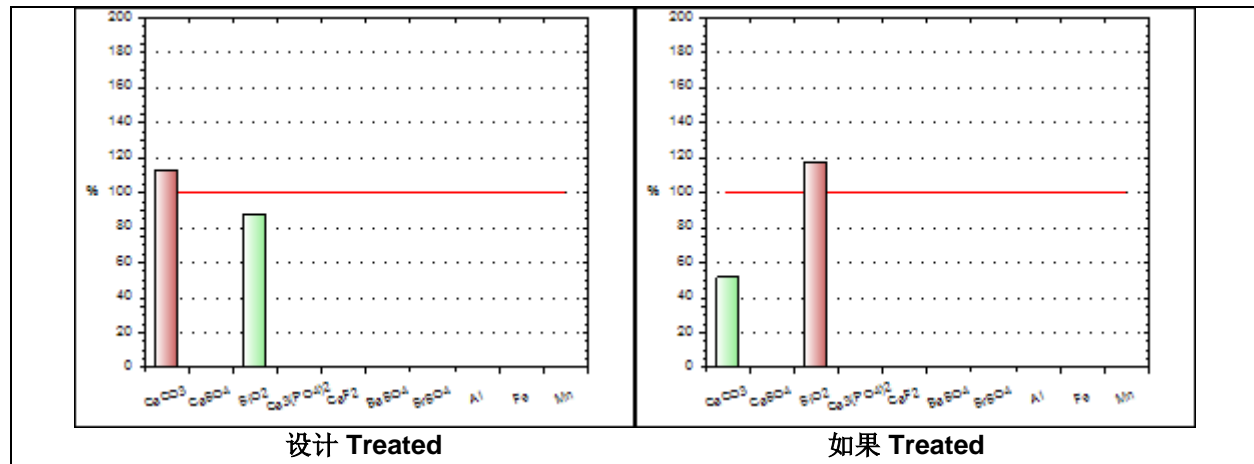
Water Chemistry		如果		
Ion	Unit	Raw Water	Feed	Concentrate
Aluminum	ppm Al	0	0	0
Barium	ppm Ba	0	0	0
Calcium	ppm Ca	400.48	400.48	2481.98
Iron	ppm Fe	0	0	0
Magnesium	ppm Mg	121.42	121.42	752.49
Manganese	ppm Mn	0	0	0
Potassium	ppm K	0	0	0
Silica	ppm SiO2	50	50	309.87
Sodium	ppm Na	0	0	0
Orthophosphate	ppm PO4	0	0	0
Bromide	ppm Br	0	0	0
Chloride	ppm Cl	0	74.19	459.77
Nitrate	ppm Nitrate	0	0	0
Sulfate	ppm SO4	0	0	0
Bicarbonate	ppm HCO3	488	360.61	2230.73
Carbonate	ppm CO3	0.38	0.09	2.29
Fluoride	ppm F	0	0	0
Strontium	ppm Sr	0	0	0
Carbon dioxide	ppm CO2	68.89	160.98	162.22
pH		7	6.5	7.35
Ionic Strength		0.03	0.03	0.21

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Product Dosage Recommendation and Product Usage Details – 如果 Case

Product Selected: PC-510T	如果 Conditions
Dose in feed water for scale control:	4.91 ppm
Dose in feed water for iron/aluminum/manganese control:	0 ppm
Total feed water dose:	4.91 ppm
PermaTreat PC-510T in concentrate:	30.42 ppm
Daily requirement for PermaTreat PC-510T:	11.12 kg/day
HCl Daily Requirement:	174.58 kg/day
Daily Requirement of HCl in ppm:	76.28

<u>Scaling Indices</u>	<u>如果</u>			
<u>Index Name</u>	<u>Feed Values</u>	<u>Concentrate Values</u>	<u>Untreated %</u>	<u>Treated %</u>
CaCO3 SR	0.73	74.74	7474.34	51.55
CaSO4 SR	0	0	0	0
BaSO4 SR	0	0	0	0
SrSO4 SR	0	0	0	0
CaF2 SR	0	0	0	0
Fe Fouling	0	0	0	0
Al Fouling	0	0	0	0
Mn Fouling	0	0	0	0
SiO2 Fouling	0.38	2.44	244.15	117.38
Ca3(PO4)2 Fouling	0	0	0	0



Recovery adjusted to 84 vs. 80 ; Feed pH adjusted to 6.5 vs. 7; Temperature adjusted to 25 vs. 25.

Savings generated by 如果 design:

Type	设计	如果	Savings	US\$ Savings
Feed	2400 m3/day	2285.71 m3/day	114.29 m3/day	0
Reject	480 m3/day	365.71 m3/day	114.29 m3/day	0
pH	0 kg/day	174.58 kg/day	-174.58 kg/day	0
PC-510T usage increased by 0.7 kg/day.				