

PWTProDose by PWT Incorporated
 Program: PROdose32 v 2.13.74
 Project: CHING
 Prepared By: Luo
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Page: 1
 Client: CHING
 Print Date: 17-07-17
 Location: Shanghai
 Analysis File:

Concentrate Data

	mg/l	meq/l	ppm CaCO3		mg/l	meq/l	ppm CaCO3	
Calcium	2089.93	104.2879	5219.09		2479.73	40.6446	2034.06	Bicarbonate
Magnesium	633.53	52.1317	2608.93		216.64	6.1111	305.83	Chloride
Sodium	5.14	0.2236	11.19		5216.18	108.6025	5435.01	Sulfate
Potassium								Fluoride
Ammonium								Nitrate
Barium								Phosphate
Strontium					129.59	2.1570	107.94	Silica
Iron					19.40	0.6466	32.36	Carbonate
Aluminum					65.18	0.0000	0.00	CO2
Cation Total	2728.60	156.6432	7839.21		8061.54	156.0045	7807.27	Anion Total

SPECTRAGUARD LIQUID Conc ppm 21.10790.14 PPM TDS pH 7.65

25.0 Deg C Recovery 81.00%

Ionic Strength = 0.289

Concentrate SATURATION DATA

Ion / Compound	No Treatment	With PWT
Langelier Index - LSI	2.47	82.2%
Stiff Davis-SDSI I.S.>0.3	2.08	69.3%
CaSO4-Gypsum	430.2%	95.6%
SiO2-Silica	103.7%	45.1%
BaSO4-Barium Sulfate	0.0%	0.0%
SrSO4-Strontium Sulfate	0.0%	0.0%
CaF2-Calcium Fluoride	0.0%	0.0%
Iron / Ferric / Fe+3	0.0%	0.0%

No Warnings Noted.

SAVE ANALYSIS TO FILE...

Analysis Name
Concentrate

OK/Close

PL-Dose and Calculator Utility

SPECTRAGUARD LIQUID ppm in Concentrate 21.1

Feed Water Flow - m3/hr 98.8 ppm in Feed 4.0

9.48 kg/day

One (1) Full Day Tank Requires:

kg or liter liter Water

10.1 9.17 90.8

Tank Vol in Days 1.06

1.01 Est Sp Gr.

100.0% 10.00% 3.92

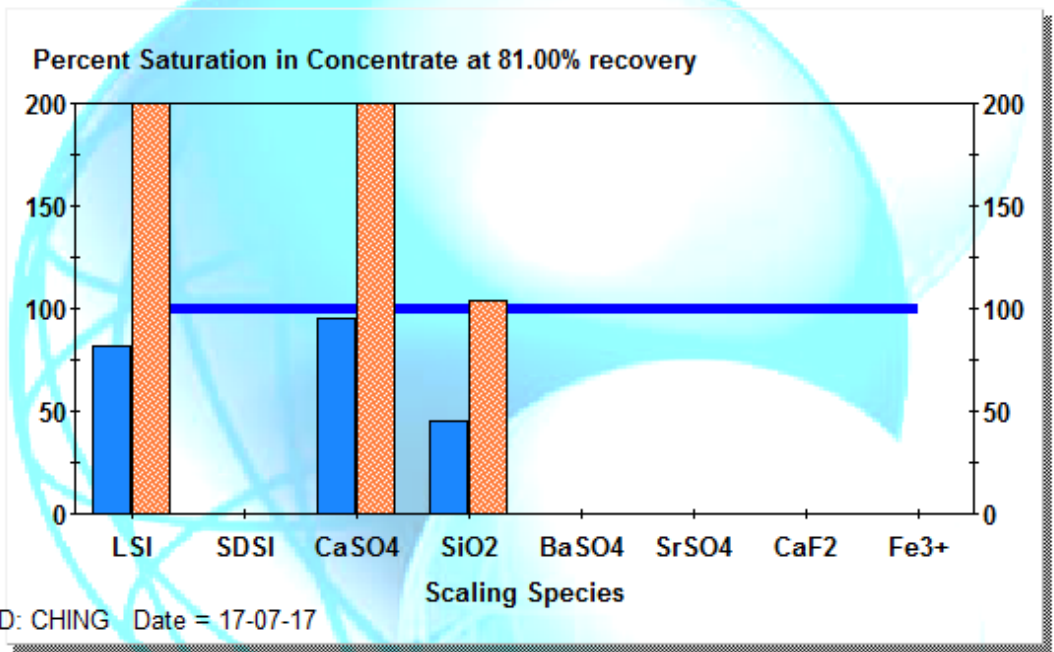
Percent Active Material Percent Active in Day Tank Pumping rate - Liter/hr

Print Data Reset to current design Cancel Help OK

Chemical Mass Units
 kg (kilograms)
 lb (pounds)
 MT (metric tons)
 ton (US)

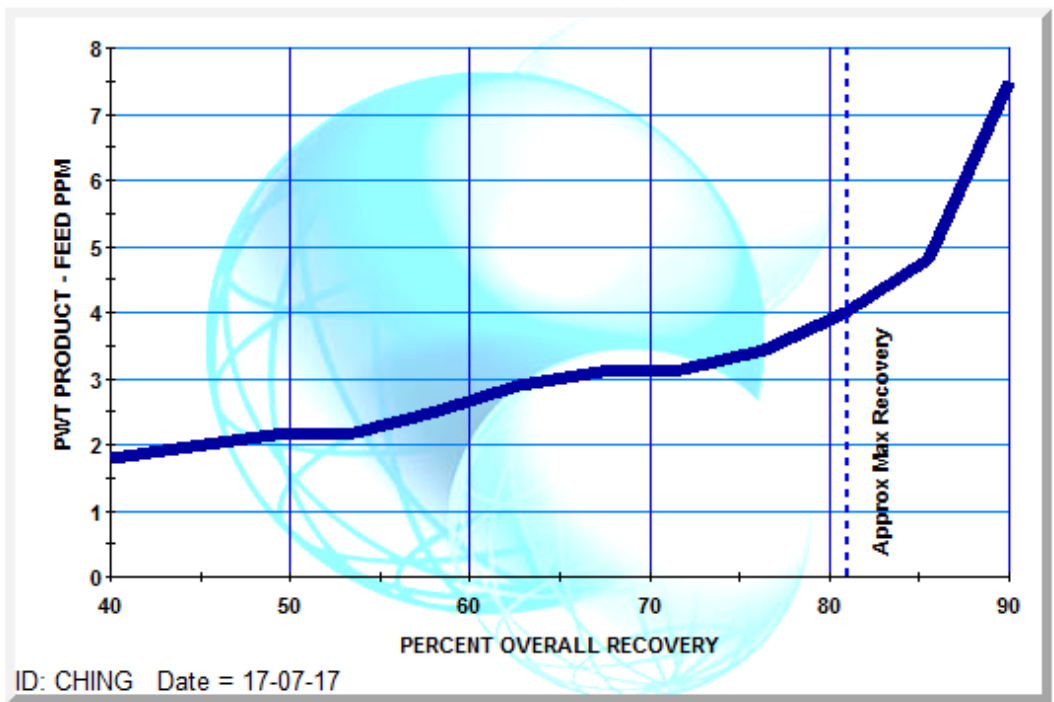
Vol and Pumping Units
 Liters, l/hr
 Gallons (US), gph
 Cubic meters, m³/hr
 Barrels, bbl/hr
 ml, ml/min

PWTPRODOSE32 - QUICK VIEW



- SPECTRAGUARD LIQUID at 4 ppm
- WITHOUT ANY PWT PRODUCTS
- Maximum Allowable with PWT Products

PWTPRODOSE32 - FEED DOSE vs RECOVERY



- With SPECTRAGUARD LIQUID

Product Selection: SPECTRAGUARD LIQUID

Recommended Dose Rates: 4.0 mg/l - Feed,

21.0 mg/l - Concentrate

Est. Product usage (100%): 9.48 kgs/day

3.4632 mt/yr

No acid dosing was specified.

System Information	Flow Units: m3/hr	Maximized Recovery is Used!	
Feedwater Type:	Custom File		
Feedwater Flow:	98.8	Concentrate Flow:	18.8
Permeate Flow:	80.0	Recycle Flow:	0.0
System Recovery:	81.00%	RO Recovery:	81.00%
Feed Temperature:	25.0 C	Membrane Rejection:	99.00%

mg/l or ppm	Sys Feed	PreTreated	RO Avg Feed	RO Perm	RO Conc
Calcium	400.44	400.44	1,022.17	2.16	2,089.93
Magnesium	121.42	121.42	309.88	0.68	633.53
Sodium	1.00	1.00	2.53	0.02	5.14
Potassium	0.00	0.00	0.00	0.00	0.00
Ammonium		0.00	0.00	0.00	0.00
0.00					
Barium	0.00	0.00	0.00	0.00	0.00
Strontium	0.00	0.00	0.00	0.00	0.00
Iron	0.00	0.00	0.00	0.00	0.00
Aluminum	0.00	0.00	0.00	0.00	0.00
Bicarbonate	487.64	487.64	1,226.99	11.63	2,479.73
Chloride **	42.11	42.11	106.51	0.81	216.64
Sulfate	1,000.00	1,000.00	2,551.70	6.49	5,216.18
Fluoride	0.00	0.00	0.00	0.00	0.00
Nitrate	0.00	0.00	0.00	0.00	0.00
Phosphate	0.00	0.00	0.00	0.00	0.00
Silica	25.00	25.00	63.56	0.47	129.59
Carbonate	0.48	0.48	3.83	0.00	19.40
CO2	65.68	65.68	65.43	65.62	65.18
TDS	2,078.09	2,078.09	5,295.40	22.25	10,790.14
Ionic Strength	0.06	0.06	0.14	0.00	0.29
pH	7.00	7.00	7.37	5.57	7.65

Feed water Balanced with 0.0 ppm Cl

Saturation	Raw	Treated	Con-	% Max SI
Index SI %	Feed	Feed	centrate	with PWT
LSI	0.617	0.617	2.466	82.19%
CaSO4	54.6%	54.6%	430.2%	95.59%
BaSO4	0.0%	0.0%	0.0%	0.00%
SrSO4	0.0%	0.0%	0.0%	0.00%

CaF2	0.0%	0.0%	0.0%	0.00%
SiO2	20.0%	20.0%	103.7%	45.08%
Iron	0.0%	0.0%	0.0%	0.00%

No Warnings Noted provided PWT product dosing is maintained.

SPECTRAGUARD LIQUID

Day Tank and Dosing Pump Design and Information

Note: The dose and tank data is User input data.

It may not match the PWT Summary Data on Page 1.

Feed Dose:	4.0	ppm
Concentrate Dose:	21.1	ppm
System Feed Flow:	98.8	m3/hr
Mass Flow of SPECTRAGUARD LIQUID:	9.48	kg/day
% Active SPECTRAGUARD LIQUID:	100.00%	
Dose Pump Rate:	3.92	Liter/hr
Day Tank Volume:	100.0	liter
Day Tank Volume:	1.06	Days storage
% Active in Day Tank	10.00%	
Volume Water to Fill Day Tank:	90.8	liter
Mass Chemical to Fill Day Tank:	10.1	kg
Volume Chemical to Fill Day Tank:	9.17	liter