

ภาคผนวก

ตารางการคำนวณค่าป้อนเข้าของเครื่องปรับสมดุลค่าพารามิเตอร์ (Auto Chemirobot)

Temp	Current	Conc	Thickness
40	2.5	45	550.2980875
40	2.2	46	550.4394956
40	1.9	47	551.0932659
40	1.65	48	551.7864296
40	1.6	49	550.8438992
40	1.5	50	550.545125
40	1.51	51	549.0948076
40	1.285	52	550.6530657
40	1.19	53	550.8108174
40	1.15	54	550.3287523
40	1.1	55	550.0693715
41	0.05	45	538.4032438
41	0.05	46	539.5263569
41	0.05	47	540.6494701
41	0.05	48	541.7725832
41	0.05	49	542.8956964
41	0.05	50	544.0188095
41	0.05	51	545.1419227
41	0.05	52	546.2650358
41	0.05	53	547.3881489
41	0.05	54	548.5112621
41	0.05	55	549.6343752
42	0.05	45	509.6093657
42	0.05	46	511.9474889
42	0.05	47	514.285612
42	0.05	48	516.6237352
42	0.05	49	518.9618584
42	0.05	50	521.2999815
42	0.05	51	523.6381046
42	0.05	52	525.9762278
42	0.05	53	528.3143509
42	0.05	54	530.6524741
42	0.05	55	532.9905972
43	0.05	45	480.8154878
43	0.05	46	484.3686209
43	0.05	47	487.9217541
43	0.05	48	491.4748872
43	0.05	49	495.0280204
43	0.05	50	498.5811535
43	0.05	51	502.1342867
43	0.05	52	505.6874198
43	0.05	53	509.240553
43	0.05	54	512.7936861
43	0.05	55	516.3468193
44	405	46	550.03273
44	0.05	47	461.5578961
44	0.05	48	466.3260392
44	0.05	49	471.0941824
44	0.05	50	475.8623255
44	0.05	51	480.6304687
44	0.05	52	485.3986118
44	0.05	53	490.1667549
44	0.05	54	494.9348981
44	0.05	55	499.7030412
45	8	45	447.71083
45	21.2	46	476.2843976
45	50.7	47	504.6737327
45	178.7	48	533.6864488
45	0.1	49	447.1435387
45	0.1	50	453.083995
45	0.1	51	459.0244513
45	0.1	52	464.9649076
45	0.1	53	470.9053639
45	0.1	54	476.8458202
45	0.1	55	482.7862765

ตารางการคำนวณค่าป้อนเข้าของเครื่องปรับสมดุลค่าพารามิเตอร์ (Auto Chemerobot) ต่อ

Temp	Current	Conc	Thickness
46	30.9	45	550.9999
46	35.2	46	550.005
46	42	47	550.0843
46	53.5	48	550.3623
46	77	49	550.9117
46	149	50	550.3875
46	0.05	51	437.6228
46	0.05	52	444.821
46	0.05	53	452.0192
46	0.05	54	459.2173
46	0.05	55	466.4155
47	26.2	45	550.5339
47	28.4	46	550.2931
47	31.44	47	550.7996
47	35.4	48	550.2622
47	41.5	49	550.7828
47	51.2	50	550.9683
47	69	51	550.3573
47	115	52	550.1675
47	491	53	550.2917
47	1	54	440.7744
47	1	55	448.3763
48	23.6	45	550.3493
48	24.9	46	550.5429
48	26.5	47	550.7237
48	28.5	48	550.7735
48	31	49	550.2327
48	34.5	50	550.2185
48	39.7	51	550.9287
48	47.4	52	550.4789
48	61.2	53	550.5087
48	92	54	550.4387
48	223	55	550.5301
49	22	45	550.8498
49	22.7	46	550.0943
49	23.7	47	550.9494
49	24.7	48	550.0965
49	26.1	49	550.5941
49	27.7	50	550.059
49	29.9	51	550.3539
49	32.8	52	550.4502
49	36.9	53	550.6695
49	43	54	550.6385
49	53	55	550.0254
50	20.79	45	550.0571
50	21.25	46	550.018
50	21.79	47	550.1012
50	22.4	48	549.9967
50	23.14	49	550.1039
50	24	50	550.0016
50	25.07	51	550.0965
50	26.38	52	550.0631
50	28.05	53	550.0335
50	30.26	54	550.0522
50	33.3	55	550.0461

ตารางการควบคุมความสามารถของกระบวนการหลังการปรับปรุงด้วย X bar-R chart

Trend Chart (Xbar - R Chart) 176EIOFPI
1) Point no. Thickness#1 (550 ±200 micronch)

Date : MM-DD-YY	Dec-01-08	Dec-01-08	Dec-03-08	Dec-04-08	Dec-08-08	Dec-10-08	Dec-11-08	Dec-16-08	Dec-16-08	Dec-17-08	Dec-18-08	Dec-22-08	Dec-23-08	Dec-24-10	Dec-25-11	Dec-26-12	Dec-27-13	Dec-29-14	Dec-30-15	Cpk
Material Lot No.	08102532	08102832	08103032	08103132	08103032	08101032	08110332	08120532	08120532	08121032	08120632	08121132	8121247	12230904	12230956	12231563	12231598	12231723	12231845	
Sample no. 1	630.250	570.880	591.510	522.140	622.140	532.440	545.330	576.360	550.000	593.100	601.470	589.940	568.210	532.440	522.140	522.140	532.440	545.330	576.360	
Sample no. 2	565.560	550.250	540.880	631.510	594.730	512.770	543.400	554.660	575.290	465.920	456.550	547.180	484.660	512.770	531.510	584.730	512.770	505.400	594.030	
Sample no. 3	561.250	559.620	567.990	576.360	594.030	517.320	593.100	584.730	512.770	503.400	534.030	531.510	593.100	576.360	547.320	593.100	575.290	594.030	594.030	
Sample no. 4	540.670	568.980	583.273	597.557	551.830	550.250	484.730	593.273	477.550	551.830	593.273	577.550	597.557	550.250	597.557	551.830	550.250	584.730	583.273	
Sample no. 5	537.620	578.360	601.513	624.667	547.810	540.880	551.830	584.730	552.770	503.400	508.990	583.273	587.860	512.770	540.880	624.667	547.810	540.880	584.730	
Average X-bar	567.070	561.620	575.033	590.447	564.766	545.888	532.116	586.485	533.298	561.670	539.880	543.267	562.966	534.763	545.888	570.447	545.888	552.116	586.485	
USL	800.000	800.000	800.000	800.000	800.000	800.000	800.000	800.000	800.000	800.000	800.000	800.000	800.000	800.000	800.000	800.000	800.000	800.000	800.000	
LSL	300.000	300.000	300.000	300.000	300.000	300.000	300.000	300.000	300.000	300.000	300.000	300.000	300.000	300.000	300.000	300.000	300.000	300.000	300.000	
Spec	550.000	550.000	550.000	550.000	550.000	550.000	550.000	550.000	550.000	550.000	550.000	550.000	550.000	550.000	550.000	550.000	550.000	550.000	550.000	
Average	557.543	557.543	557.543	557.543	557.543	557.543	557.543	557.543	557.543	557.543	557.543	557.543	557.543	557.543	557.543	557.543	557.543	557.543	557.543	
Stdev	35.937	35.937	35.937	35.937	35.937	35.937	35.937	35.937	35.937	35.937	35.937	35.937	35.937	35.937	35.937	35.937	35.937	35.937	35.937	
Cp	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	
Cpu	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	
Cpl	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	
Cpk	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	
Range	92.630	38.740	60.633	109.370	104.820	80.330	90.560	17.670	77.110	89.700	135.550	133.290	53.830	112.897	80.330	102.527	62.590	80.330	81.330	17.670

