

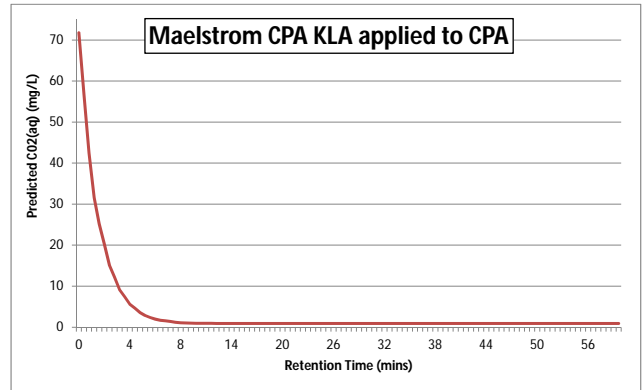
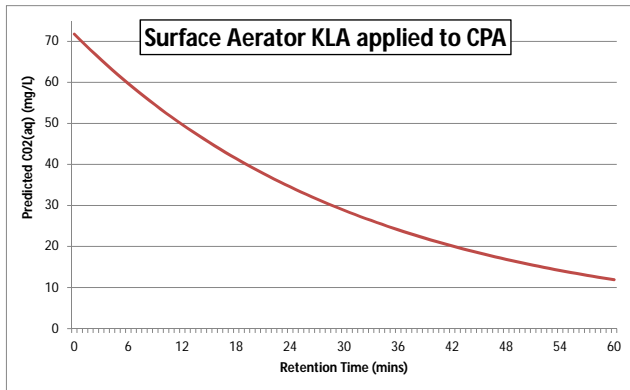
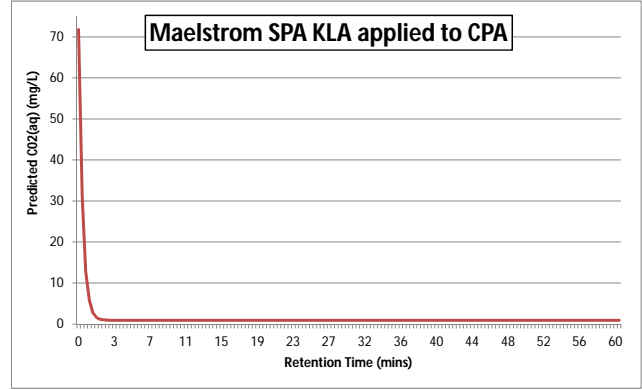
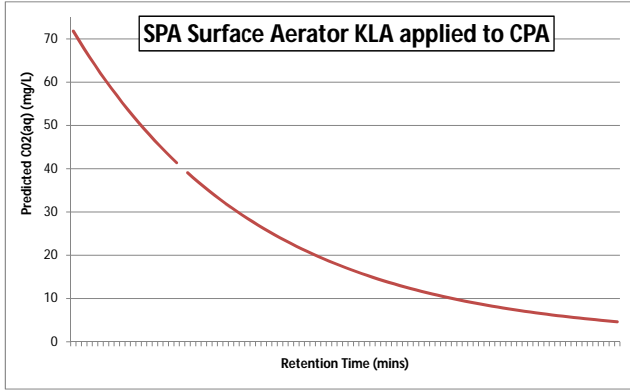
Maelstrom Oxidizer vs Traditional Surface Aerator

moles to fugacity convert

0.051522864

	Reactor Type	Flow	Horsepower	CFM	CO2(aq) initial	CO2(aq) Final	Max. CO2 @ Equil	% Reducti	Theoretical RT (mins)	Kla (sec ⁻¹)	GWB KLA	GWB KLA Cresson
Maelstrom SPA site	Plug	1108	20	2000	254.9	62.53	0.7429	76%	0.5	4.72E-02	2.43E-03	2.43E-03
Maelstrom CPA site	Plug	918	39	3500	46.44	11.57	0.7429	76%	2	1.22E-02	6.26E-04	6.26E-04
Surface Aerator CPA site	Continuous Stirred	4100	30	Not applic.	129.7	61.6	0.709	53%	36	5.20E-04	2.68E-05	2.68E-05
Surface aerator SPA site	Continuous Stirred	1600	25	Not applic.	448.3	143.8	0.6272	68%	43	8.23E-04	4.24E-05	4.24E-05

Flow = gpm, concentrations in mg/L, compare gas transfer rates of aerators (Kla) by studying column L



Applied KLa's from evaluating aeration devices to the Cresson Combined water to predict CO2 exsolution performance

Maelstrom SPA KLa applied to CPA combined water		Maelstrom CPA KLa applied to SPA combined water		CPA Surface Aerator KLa applied to CPA combined water		SPA Surface aerator KLa applied to CPA combined water
min	CO2(aq) mg/L	min	CO2(aq) mg/L	min	CO2(aq) mg/L	CO2(aq) mg/L
0.0	71.8	0.0	71.8	0.0	71.8	71.8
0.3	31.2	0.3	56.6	0.6	70.5	69.7
0.6	12.8	0.7	42.5	1.2	69.2	67.7
1.0	5.8	1.2	31.6	1.8	67.9	65.8
1.3	2.8	1.5	25.2	2.4	66.7	63.9
1.7	1.6	1.8	20.3	3.0	65.5	62.1
2.0	1.2	2.2	15.1	3.6	64.3	60.3
2.3	1.0	2.5	12.2	4.2	63.1	58.6
2.7	1.0	3.0	9.1	4.8	62.0	56.9
3.2	0.9	3.3	7.5	5.4	60.8	55.3
3.5	0.9	3.8	5.6	6.0	59.7	53.7
3.8	0.9	4.1	4.6	6.6	58.6	52.2
4.2	0.9	4.6	3.6	7.2	57.6	50.7
4.6	0.9	5.0	2.9	7.8	56.5	49.2
4.9	0.9	5.4	2.4	8.4	55.5	47.8
5.2	0.9	5.9	2.0	9.0	54.5	46.5
5.6	0.9	6.3	1.7	9.6	53.5	45.1
6.0	0.9	6.6	1.5	10.2	52.5	43.9
6.4	0.9	6.9	1.4	10.8	51.6	42.6
6.8	0.9	7.7	1.2	11.4	50.6	41.4
7.1	0.9	8.4	1.1	12.0	49.7	
7.5	0.9	9.0	1.0	12.6	48.8	39.1
8.0	0.9	9.6	1.0	13.2	47.9	38.0
8.3	0.9	10.2	1.0	13.8	47.1	36.9
8.7	0.9	10.8	1.0	14.4	46.2	35.8
9.0	0.9	11.4	0.9	15.0	45.4	34.8
9.4	0.9	12.0	0.9	15.6	44.6	33.9
9.8	0.9	12.6	0.9	16.2	43.7	32.9
10.1	0.9	13.2	0.9	16.8	43.0	32.0
10.5	0.9	13.8	0.9	17.4	42.2	31.1
11.0	0.9	14.4	0.9	18.0	41.4	30.2
11.4	0.9	15.0	0.9	18.6	40.7	29.3
11.8	0.9	15.6	0.9	19.2	39.9	28.5
12.4	0.9	16.2	0.9	19.8	39.2	27.7
12.7	0.9	16.8	0.9	20.4	38.5	26.9
13.2	0.9	17.4	0.9	21.0	37.8	26.2
13.6	0.9	18.0	0.9	21.6	37.1	25.4
14.3	0.9	18.6	0.9	22.2	36.5	24.7
14.7	0.9	19.2	0.9	22.8	35.8	24.0
15.0	0.9	19.8	0.9	23.4	35.2	23.4
15.4	0.9	20.4	0.9	24.0	34.5	22.7
15.8	0.9	21.0	0.9	24.6	33.9	22.1
16.2	0.9	21.6	0.9	25.2	33.3	21.5
16.6	0.9	22.2	0.9	25.8	32.7	20.9
17.0	0.9	22.8	0.9	26.4	32.1	20.3
17.4	0.9	23.4	0.9	27.0	31.5	19.7
17.8	0.9	24.0	0.9	27.6	31.0	19.2
18.2	0.9	24.6	0.9	28.2	30.4	18.7
18.6	0.9	25.2	0.9	28.8	29.9	18.1
19.0	0.9	25.8	0.9	29.4	29.3	17.6
19.4	0.9	26.4	0.9	30.0	28.8	17.2
19.8	0.9	27.0	0.9	30.6	28.3	16.7
20.2	0.9	27.6	0.9	31.2	27.8	16.2
20.6	0.9	28.2	0.9	31.8	27.3	15.8
21.0	0.9	28.8	0.9	32.4	26.8	15.3
21.4	0.9	29.4	0.9	33.0	26.3	14.9
21.8	0.9	30.0	0.9	33.6	25.9	14.5
22.2	0.9	30.6	0.9	34.2	25.4	14.1
22.6	0.9	31.2	0.9	34.8	24.9	13.7
23.0	0.9	31.8	0.9	35.4	24.5	13.4
23.4	0.9	32.4	0.9	36.0	24.1	13.0
23.8	0.9	33.0	0.9	36.6	23.6	12.7
24.2	0.9	33.6	0.9	37.2	23.2	12.3
24.6	0.9	34.2	0.9	37.8	22.8	12.0
25.0	0.9	34.8	0.9	38.4	22.4	11.7
25.4	0.9	35.4	0.9	39.0	22.0	11.4
25.8	0.9	36.0	0.9	39.6	21.6	11.0
26.2	0.9	36.6	0.9	40.2	21.2	10.8
26.6	0.9	37.2	0.9	40.8	20.9	10.5
27.0	0.9	37.8	0.9	41.4	20.5	10.2
27.4	0.9	38.4	0.9	42.0	20.1	9.9
27.8	0.9	39.0	0.9	42.6	19.8	9.7
28.2	0.9	39.6	0.9	43.2	19.4	9.4
28.6	0.9	40.2	0.9	43.8	19.1	9.2
29.0	0.9	40.8	0.9	44.4	18.7	8.9
29.4	0.9	41.4	0.9	45.0	18.4	8.7
29.8	0.9	42.0	0.9	45.6	18.1	8.5
30.1	0.9	42.6	0.9	46.2	17.8	8.2
30.6	0.9	43.2	0.9	46.8	17.5	8.0
30.9	0.9	43.8	0.9	47.4	17.2	7.8
31.6	0.9	44.4	0.9	48.0	16.9	7.6
32.0	0.9	45.0	0.9	48.6	16.6	7.4
32.4	0.9	45.6	0.9	49.2	16.3	7.2
32.8	0.9	46.2	0.9	49.8	16.0	7.1
33.2	0.9	46.8	0.9	50.4	15.7	6.9
33.6	0.9	47.4	0.9	51.0	15.4	6.7
34.0	0.9	48.0	0.9	51.6	15.2	6.5
34.4	0.9	48.6	0.9	52.2	14.9	6.4
34.8	0.9	49.2	0.9	52.8	14.7	6.2
35.2	0.9	49.8	0.9	53.4	14.4	6.1
35.6	0.9	50.4	0.9	54.0	14.1	5.9
36.0	0.9	51.0	0.9	54.6	13.9	5.8
36.4	0.9	51.6	0.9	55.2	13.7	5.6
36.8	0.9	52.2	0.9	55.8	13.4	5.5
37.2	0.9	52.8	0.9	56.4	13.2	5.4
37.6	0.9	53.4	0.9	57.0	13.0	5.2
38.0	0.9	54.0	0.9	57.6	12.7	5.1
38.4	0.9	54.6	0.9	58.2	12.5	5.0
38.8	0.9	55.2	0.9	58.8	12.3	4.9
39.2	0.9	55.8	0.9	59.4	12.1	4.8
39.6	0.9	56.4	0.9	60.0	11.9	4.6
40.0	0.9	57.0	0.9			
40.4	0.9	57.6	0.9			
40.8	0.9	58.2	0.9			
41.2	0.9	58.8	0.9			
41.6	0.9	59.4	0.9			
42.0	0.9	60.0	0.9			

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42.8	0.9
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