Supplementary Material

Table S-1. Pseudo-first-order rate constants for the oxidation of TGA by $[IrCl_6]^{2-}$..

$[TGA]_0$, M	$[Ir(IV)]_0$, mM	[bathophen], mM	buffer	μ, M	pH	k_{obs}, s^{-1}
0.02	0.1	0.10	acetate	0.12	4.61	4.78
0.02	0.1	0.4	acetate	0.12	4.57	2.67
0.02	0.1	0.7	acetate	0.12	4.58	2.25
0.02	0.1	1.0	acetate	0.12	4.56	1.92
1×10^{-2}	0.01	1.0	acetate	0.11	4.75	1.11
1×10^{-2}	0.02	1.0	acetate	0.11	4.71	1.05
1×10^{-2}	0.04	1.0	acetate	0.11	4.72	1.05
1×10^{-2}	0.06	1.0	acetate	0.11	4.70	1.08
1×10^{-2}	0.08	1.0	acetate	0.11	4.68	1.10
1×10^{-2}	0.1	1.0	acetate	0.11	4.68	1.13
1×10^{-3}	0.1	1.0	acetate	0.10	4.57	0.189
2×10^{-3}	0.1	1.0	acetate	0.10	4.53	0.264
5×10^{-3}	0.1	1.0	acetate	0.11	4.54	0.553
1×10^{-2}	0.1	1.0	acetate	0.11	4.56	1.01
1.5×10^{-2}	0.1	1.0	acetate	0.12	4.57	1.63
2.0×10^{-2}	0.1	1.0	acetate	0.12	4.60	2.37
1×10^{-3}	0.02	5	perchlorate	0.10	2.5	0.015
1×10^{-3}	0.02	5	perchlorate	0.10	2.80	0.0285
1×10^{-3}	0.02	5	perchlorate	0.10	3.21	0.056
1×10^{-2}	0.1	1.0	perchlorate	0.11	3.18	0.321
1×10^{-2}	0.1	1.0	perchlorate	0.11	3.33	0.370
1×10^{-2}	0.1	1.0	perchlorate	0.11	3.48	0.432

1×10^{-2}	0.1	1.0	perchlorate	0.11	3.60	0.489
1×10^{-2}	0.1	1.0	perchlorate	0.11	3.77	0.589
1×10^{-2}	0.1	1.0	perchlorate	0.10	3.97	0.707
5×10^{-3}	0.1	1.0	perchlorate	0.10	3.74	0.362
5×10^{-3}	0.1	1.0	acetate	0.10	3.81	0.402
5×10^{-3}	0.1	1.0	acetate	0.10	4.09	0.464
5×10^{-3}	0.1	1.0	acetate	0.10	4.29	0.519
5×10^{-3}	0.1	1.0	acetate	0.10	4.49	0.579
5×10^{-3}	0.1	1.0	acetate	0.10	4.63	0.84
5×10^{-3}	0.1	1.0	acetate	0.10	4.70	0.73
5×10^{-3}	0.1	1.0	acetate	0.10	4.89	0.78
5×10^{-3}	0.1	1.0	acetate	0.10	5.12	0.92
5×10^{-3}	0.1	1.0	acetate	0.10	5.43	1.37
5×10^{-3}	0.1	1.0	phosphate	0.21	5.56	1.47
5×10^{-3}	0.1	1.0	phosphate	0.22	5.59	3.36
5×10^{-3}	0.1	1.0	phosphate	0.23	6.08	6.43
5×10^{-3}	0.1	1.0	phosphate	0.25	6.53	15.9
5×10^{-3}	0.1	1.0	phosphate	0.27	6.90	36.5
5×10^{-3}	0.1	1.0	phosphate	0.28	7.17	57.7
5×10^{-3}	0.1	1.0	phosphate	0.25	6.73	16.84
5×10^{-3}	0.1	1.0	phosphate	0.26	6.76	24.6
5×10^{-3}	0.1	1.0	phosphate	0.27	6.96	37.03
5×10^{-3}	0.1	1.0	phosphate	0.28	7.20	64.8
5×10^{-3}	0.1	1.0	phosphate	0.29	7.52	137
2×10^{-4}	0.02	1.0	borate	0.10	8.60	38.4
2×10^{-4}	0.02	1.0	borate	0.10	8.62	40.2
2×10^{-4}	0.02	1.0	borate	0.10	8.78	50.3

2×10^{-4}	0.02	1.0	borate	0.10	8.93	67.8
2×10^{-4}	0.02	1.0	borate	0.10	9.08	88.0
2×10^{-4}	0.02	1.0	borate	0.10	9.23	113

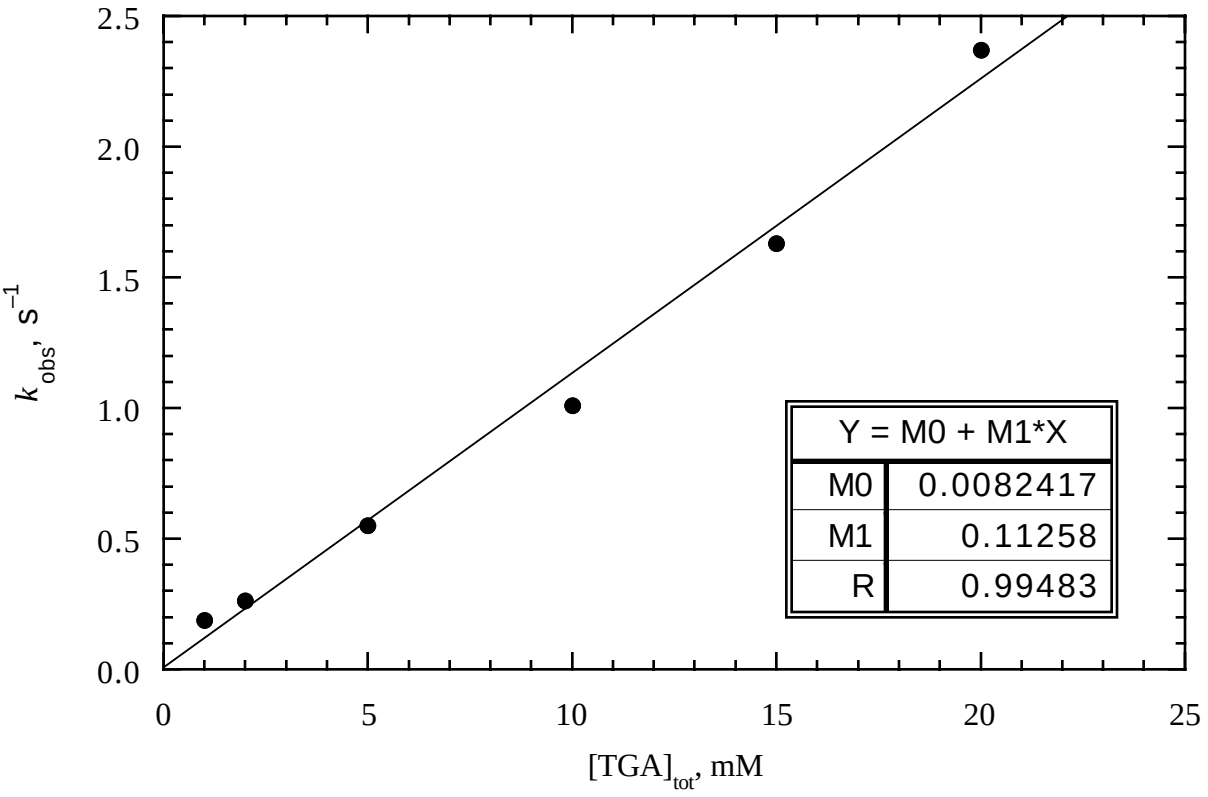

Figure S-1. Dependence of the pseudo-first-order rate constant (k_{obs}) on $[TGA]_{tot}$. The slope of the line is 113 M^{-1} s^{-1}. $[Ir(IV)]_0 = 1 \times 10^{-4}$ M, [bathophen] = 1×10^{-3} M, NaOAc-HOAc buffer (μ = 0.10 M), pH = 4.53 ~ 4.60, and $[TGA]_0 = 1 \times 10^{-3} \sim 2 \times 10^{-2}$ M.