

Competitive Oxidation and Protonation of Aqueous Monomethylplatinum(II)

Complexes: A Comparison of Oxidants

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Supporting Information

The competitive oxidation and deuterolysis of $[\text{Pt}^{\text{II}}(\text{CH}_3)\text{Cl}_3]^{2-}$ (**1**) and $[\text{Pt}^{\text{II}}(\text{CH}_3)_2\text{Cl}_2]^{2-}$ (**4**) at 22 °C in D_2O solutions.

Table 1. Dependence of $k_{\text{ox}}/k_{\text{D}^+}$ and $k_{\text{ox}}/k_{\text{H}^+}$ on $\text{Na}_2[\text{Pt}^{\text{IV}}\text{Cl}_6]$ ($[\text{D}_2\text{SO}_4] = 0.35 \text{ M}$, $[\text{Cl}^-] = 3.0 \text{ M}$)

$\text{Na}_2[\text{Pt}^{\text{IV}}\text{Cl}_6]$ (M)	$k_{\text{ox}}/k_{\text{D}^+}$ $[\text{Pt}^{\text{II}}(\text{CH}_3)\text{Cl}_3]^{2-}$	$k_{\text{ox}}/k_{\text{H}^+}$ $[\text{Pt}^{\text{II}}(\text{CH}_3)\text{Cl}_3]^{2-}$	$k_{\text{ox}}/k_{\text{D}^+}$ $[\text{Pt}^{\text{II}}(\text{CH}_3)_2\text{Cl}_2]^{2-}$	$k_{\text{ox}}/k_{\text{H}^+}$ $[\text{Pt}^{\text{II}}(\text{CH}_3)_2\text{Cl}_2]^{2-}$
0.12	3.2	0.35	4.1	0.45
0.12	3.4	0.37	4.5	0.50
0.12	4.1	0.46	5.8	0.64
0.12	3.3	0.36	5.8	0.64
0.25	3.6	0.40	4.0	0.44
0.37	3.2	0.36	3.2	0.35
0.37	2.5	0.27	3.3	0.37
0.50	2.6	0.29	2.8	0.31
0.50	4.1	0.46	3.5	0.39
average*	3.3	0.37	4.1	0.46
standard deviation*	0.6	0.06	1.1	0.12

*These numbers differ from those reported in the text: the latter are based only on the data for $[\text{Na}_2\text{Pt}^{\text{IV}}\text{Cl}_6] = 0.12 \text{ M}$, for the purpose of using the same conditions to compare low and high $[\text{Cl}^-]$.

Table 2. Dependence of k_{ox}/k_{D+} and k_{ox}/k_{H+} on $[Cl]^-$ ($Na_2[Pt^{IV}Cl_6] = 0.12 M$, $[D_2SO_4] = 0.35 M$)

$[Cl^-]$	k_{ox}/k_{D+}	k_{ox}/k_{H+}	k_{ox}/k_{D+}	k_{ox}/k_{H+}
(M)	$[Pt^{II}(CH_3)Cl_3]^{2-}$	$[Pt^{II}(CH_3)Cl_3]^{2-}$	$[Pt^{II}(CH_3)_2Cl_2]^{2-}$	$[Pt^{II}(CH_3)_2Cl_2]^{2-}$
0.72	8.099	0.900	8.55	0.95
0.72	10.877	1.209	9.21	1.02
0.72	6.871	0.763	12.54	1.394
0.72	7.723	0.858	16.44	1.827
0.72	8.625	0.958	14.23	1.582
1.5	5.677	0.631	6.70	0.74
2.2	4.521	0.502	6.06	0.67
3.0	3.165	0.352	4.09	0.45
3.0	3.352	0.372	4.49	0.499
3.0	4.125	0.458	5.78	0.642
3.0	3.282	0.365	5.77	0.641

Table 3. Dependence of k_{ox}/k_{D+} and k_{ox}/k_{H+} on $[Cl]^-$ ($[Cu^{II}Cl_2] = 0.25 M$, $[D_2SO_4] = 0.35 M$)

$[Cl^-]$	k_{ox}/k_{D+}	k_{ox}/k_{H+}	k_{ox}/k_{D+}	k_{ox}/k_{H+}
(M)	$[Pt^{II}(CH_3)Cl_3]^{2-}$	$[Pt^{II}(CH_3)Cl_3]^{2-}$	$[Pt^{II}(CH_3)_2Cl_2]^{2-}$	$[Pt^{II}(CH_3)_2Cl_2]^{2-}$
0.496	0.00	0.00	44.25	4.92
3.0	0.776	0.086	48.41	5.38