Oxidation mechanism of tetrachloroplatinate(II) by hydrogen peroxide in hydrochloric acid solution

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Electronic Supplementary Information (ESI)

Figure S1A. Dependence of $k_{\text{obs}}^0$ on the concentration of $\text{H}_2\text{O}_2$ for the oxidation of 0.02, 0.03 and 0.04 mM $\text{[PtCl}_4\text{]}^2-$.

Figure S1B. Dependence of $k_{\text{obs}}^0$ on the concentration of $\text{H}_2\text{O}_2$ for the oxidation of 0.05, 0.06 and 0.07 mM $\text{[PtCl}_4\text{]}^2-$.
Figure S2. Eyring plots for the oxidation of 0.04 mM $[\text{PtCl}_4]^{2-}$ by 100 mM $\text{H}_2\text{O}_2$, and of 1 mM $[\text{PtCl}_4]^{2-}$ by 300 mM $\text{H}_2\text{O}_2$.

Figure S3. Plot of $\ln k^0 \text{ (s}^{-1}\text{)}$ as a function of pressure to calculate the activation volume for the zero-order mechanism.
Figure S4. Absorbance vs. time plots at 353 nm and 35 °C for the oxidation of 1 mM [PtCl\textsubscript{4}]\textsuperscript{2-} by various concentrations of H\textsubscript{2}O\textsubscript{2}, [H\textsuperscript{+}], [Cl\textsuperscript{-}] = 1 M.

Figure S5. The dependence of k\textsubscript{obs} on the H\textsubscript{2}O\textsubscript{2} concentration for oxidation of 1, 0.6, and 0.2 mM [PtCl\textsubscript{4}]\textsuperscript{2-}.
**Figure S6.** Plot of ln$k_{H_2O_2}$ as a function of pressure (MPa) to calculate the activation volume for the pseudo-first order mechanism.

**Figure S7.** Absorbance vs. time plots at 353 nm and 35 °C for the oxidation of 0.04 mM [PtCl$_4$]$^{2-}$ as a function of chloride concentration. Concentrations of [PtCl$_4$]$^{2-}$ was kept constant at 0.04 mM, [H$_2$O$_2$] at 80 mM and ionic strength 1 M.
Figure S8. Plots of $k_{\text{obs}}^0$ (M s$^{-1}$) as a function of acid and chloride concentration. $[\text{PtCl}_4]^{2-} = 0.04$ mM; $[\text{H}_2\text{O}_2] = 80$ mM and ionic strength = 1 M.