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Supporting Information

for

Ion-induced surface reactions and deposition from $Pt(CO)_2Cl_2$ and $Pt(CO)_2Br_2$

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Additional experimental data

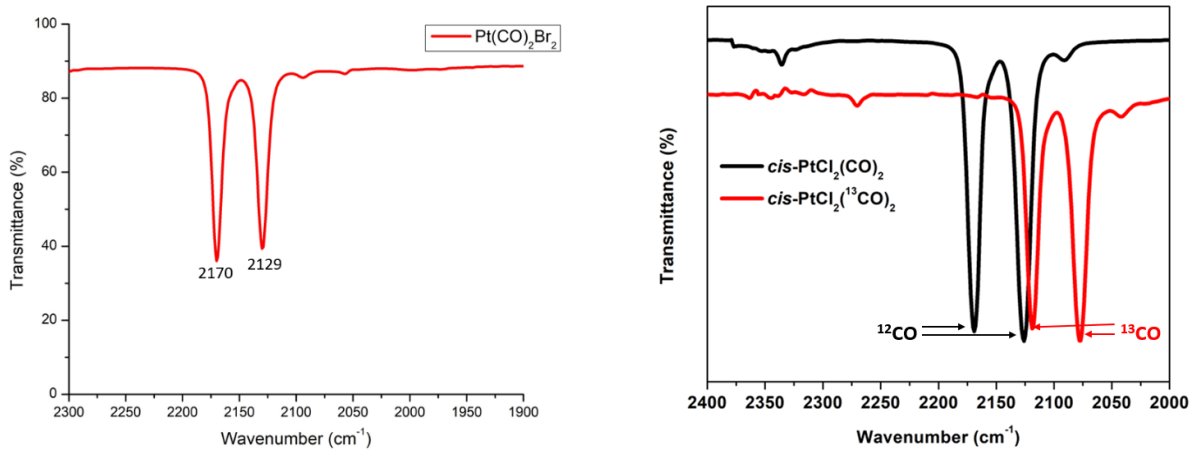

Figure S1: (Left) FTIR spectrum of *cis*-$Pt(CO)_2Br_2$ obtained in dichloromethane solution. (Right) FTIR spectra of *cis*-$Pt(^{13}CO)_2Cl_2$ (red) and *cis*-$Pt(CO)_2Cl_2$ (black) obtained in toluene solution.

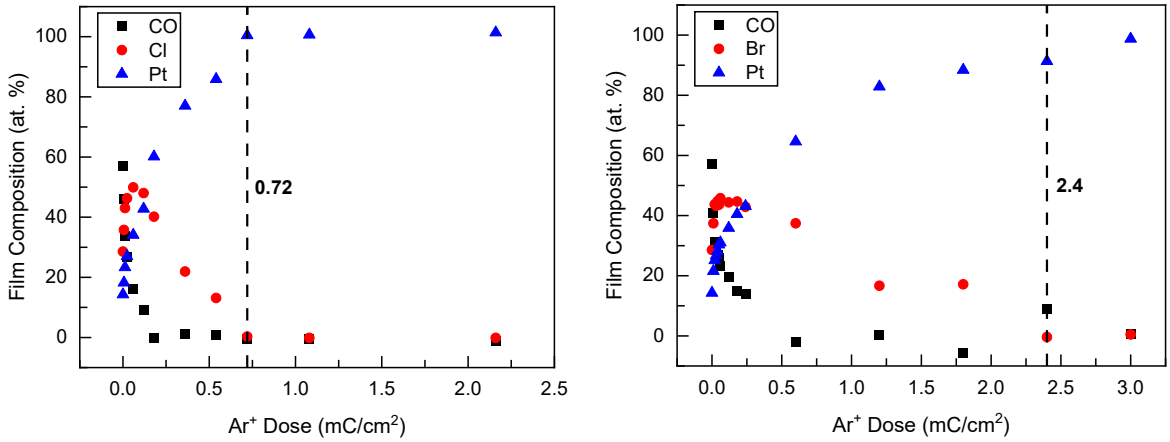

Figure S2: Film composition as a function of Ar^+ ion exposure to $Pt(CO)_2Cl_2$ (left) and $Pt(CO)_2Br_2$ (right) as determined by XPS. The dotted line represents the minimum dose required to achieve a pure Pt film.

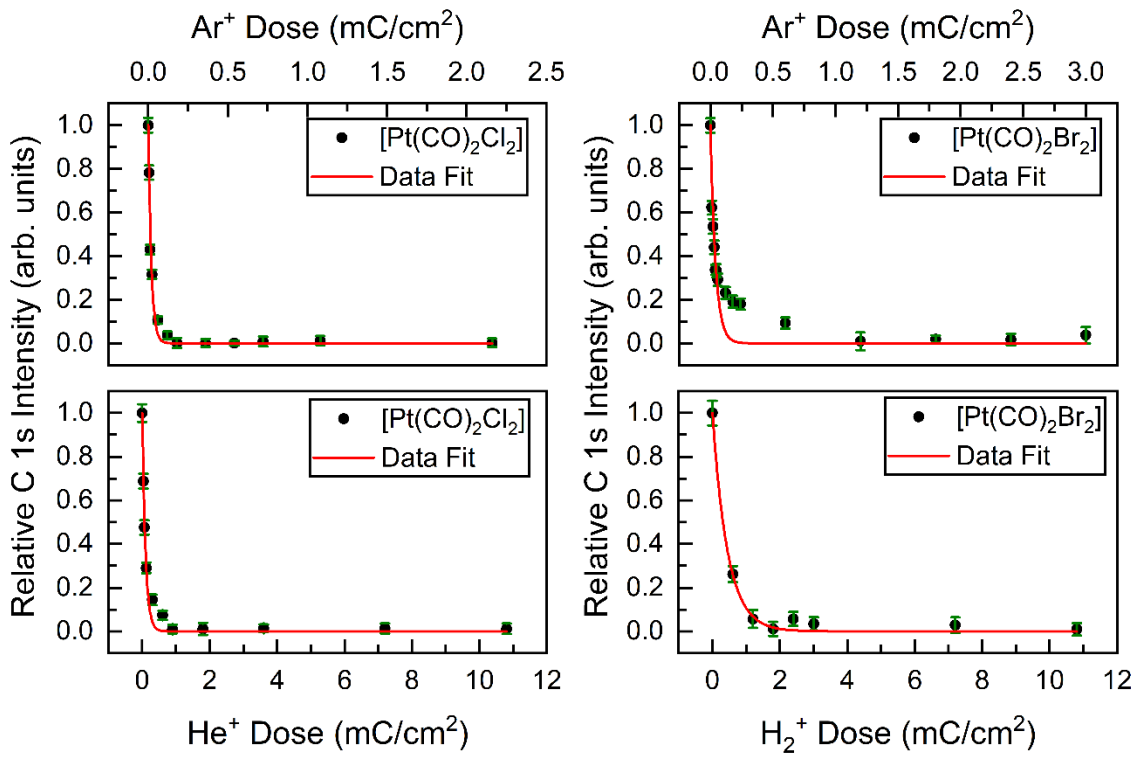

Figure S3: Change in carbon XPS intensity as a function of ion dose for each ion/precursor pair. The red line corresponds to a fit to a first-order kinetic decay profile.

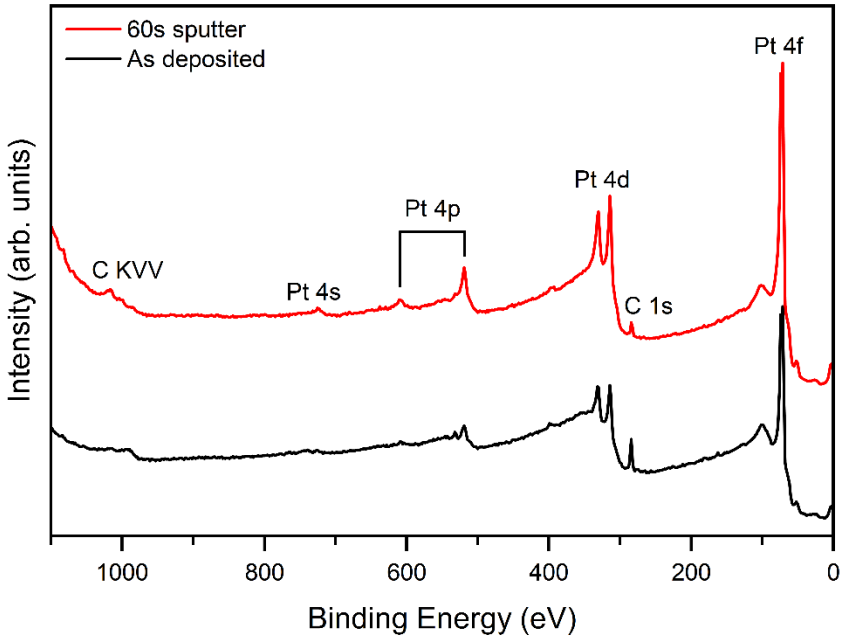

Figure S4: XPS survey spectra of a steady-state $Pt(CO)_2Cl_2$ deposit before (black) and after (red) a 60 s 1 kV Ar^+ sputter to remove adventitious carbon.

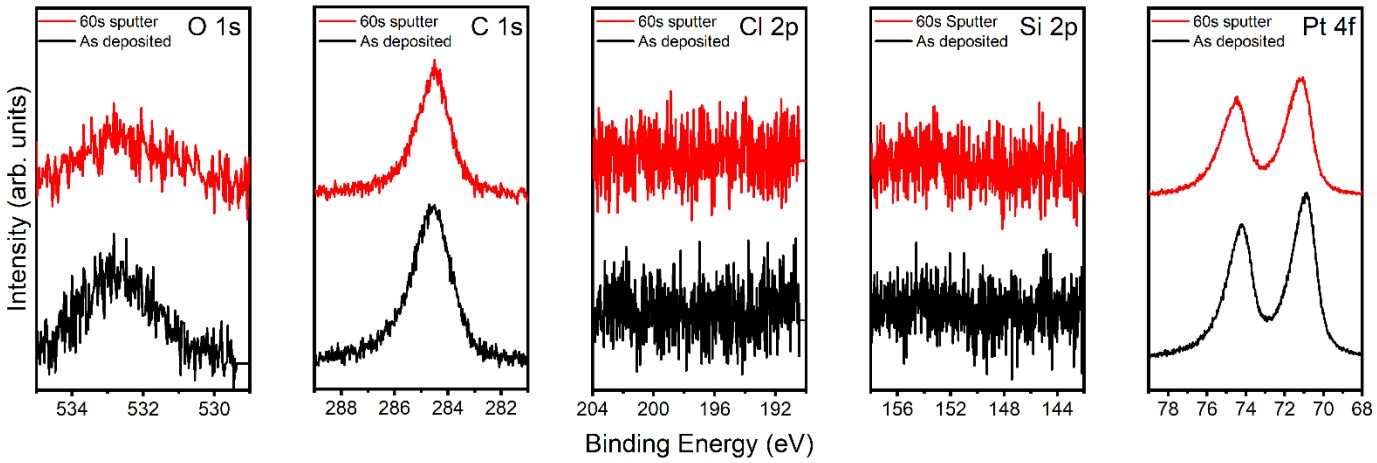

Figure S5: XPS spectra of the O (1s), C (1s), Cl (2p), Si (2p), and Pt (4f) regions of a steady-state $Pt(CO)_2Cl_2$ deposit before (black) and after (red) a 60 s 1 keV Ar^+ sputter to remove adventitious carbon.