This is a supplemental file for an item in DSpace@MIT

**Item title:** Experimental Measurement of Overpotential Sources during Anodic Gas Evolution in Aqueous and Molten Salt Systems

**Link back to the item:** https://hdl.handle.net/1721.1/131147
Supplementary Section:

S1. Fitting PDC Curve:
Due to parasitic capacitances in the potentiostat cables and internal circuitry, it was necessary to extrapolate the overpotential backwards the interrupt time to acquire an accurate reading of the ohmic overpotential. The black line in Figure S1 is an exponential fit of the PDC back to t = 0.1s (the time at which the current was interrupted). The choice of fitting model (linear vs exponential) was not important at this timescale. The remainder of the overpotential is attributed to $\eta_{mt}$.

S2. OER on Gold:
OER was attempted with a gold electrode, but EIS results, presented in the form of a Nyquist plot in Figure S2 indicated two phenomena of different characteristic time scales occurring at current densities above ~20mA/cm$^2$. Formation of soluble gold species (the electrolyte turned yellowish-brown) gave rise to complications in analyzing the current interrupt results, thus no further studies were pursued on gold.

FIGURES:
Figure S1. Overpotential vs time for CER at a glassy carbon working electrode just before and after the current (100mA) was interrupted. The PDC is extrapolated back in time using an exponential function to $t_{\text{interrupt}}$ to remove the effect of various capacitances discharging.

Figure S2. Nyquist plots of an Au working electrode held galvanostatically under different current densities. The response changes drastically around $\sim$20mA/cm$^2$. 