Electronic Supplementary Material (ESI) for Journal of Materials Chemistry


# Electronic Supplementary Information

## High-performance, mechanically compliant silica-based ionogels for electrical energy storage applications

Ariel I. Horowitz and Matthew J. Panzer*

**Figure S1:** Calibration curve used to determine the intrinsic setup resistance. Impedance spectra were measured in the experimental setup using the neat IL with three different electrode spacings (molds made from 1, 2, or 3 vertically-stacked Teflon rings). The real component of the impedance ($Z'$) at 100 kHz was plotted for each thickness, and a linear regression was used to extrapolate to zero IL thickness to find the setup resistance (~6 Ω).

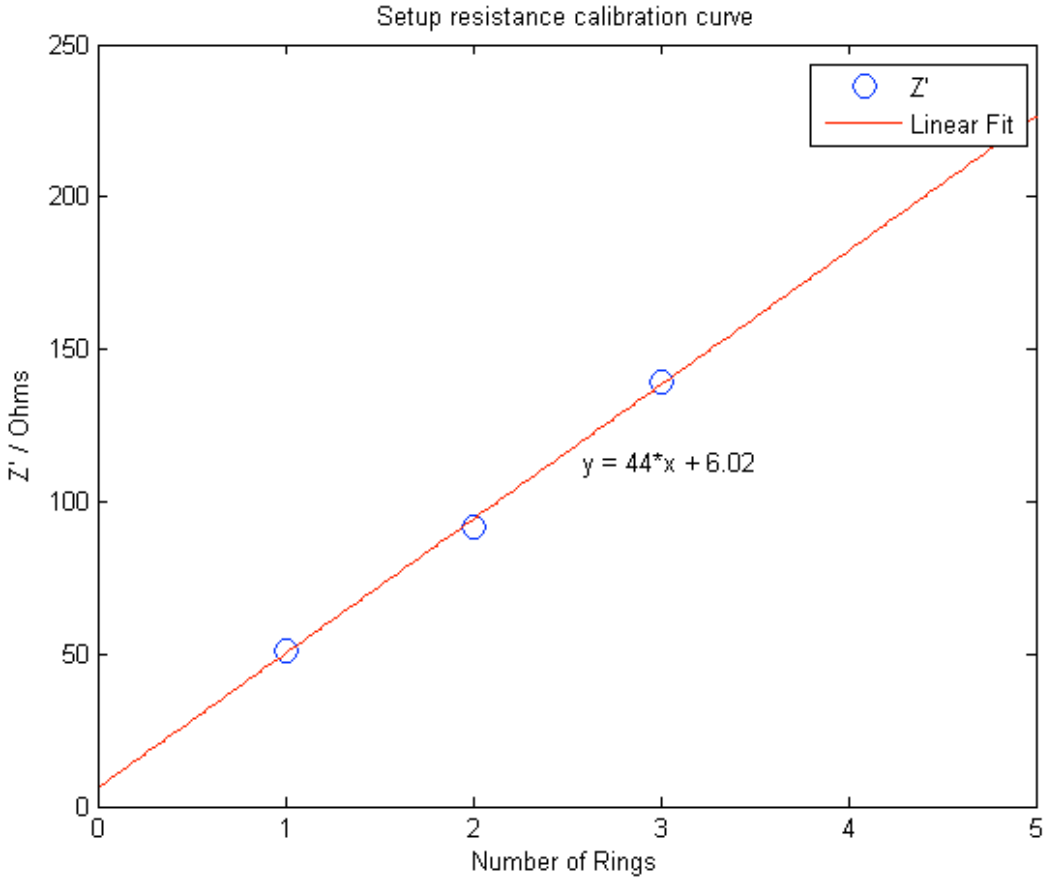

**Figure S2:** Capacitance of neat EMI TFSI and a compliant ionogel versus frequency. Points are shown only for impedance measurments in which capacitive behavior dominates (|phase angle| > 45°).

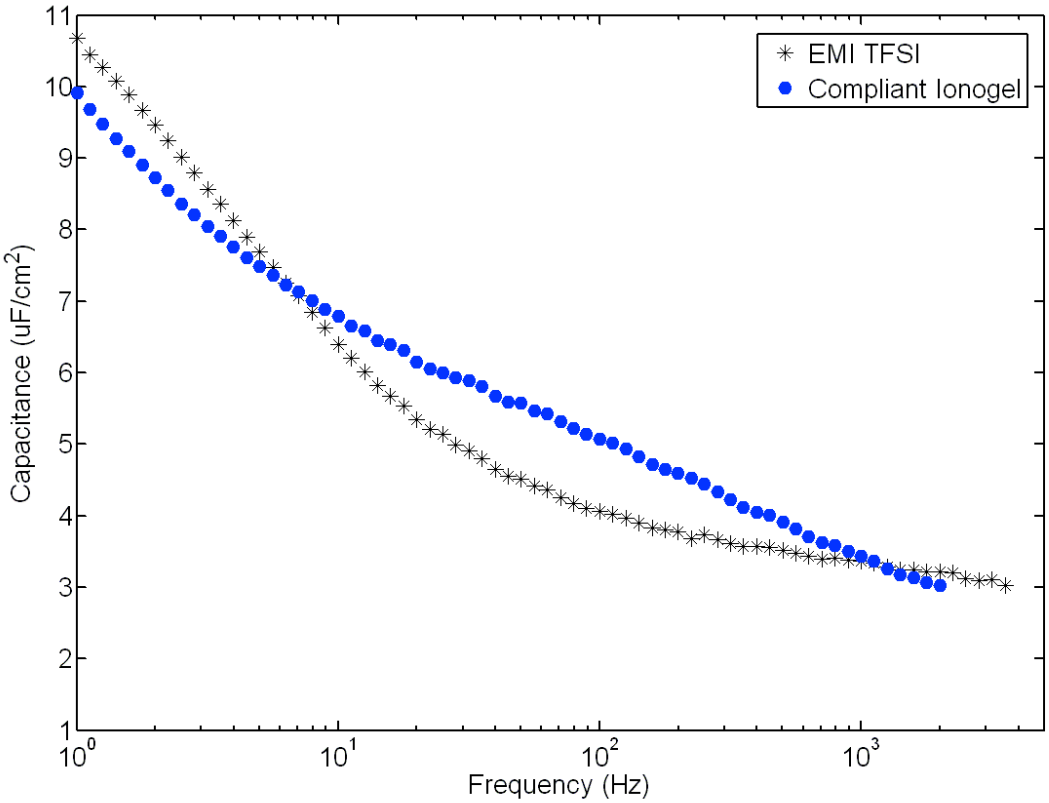

**Figure S3:** Mass loss profiles measured on bulk compliant and brittle ionogels. Compliant ionogel mass stabilizes earlier than brittle ionogel mass. Samples dried in vials, leading to a faster drying time as compared to samples injected into molds used for electrical testing due to the relatively larger open area of the vials.