Supplementary Information

Ionic conducting elastomers

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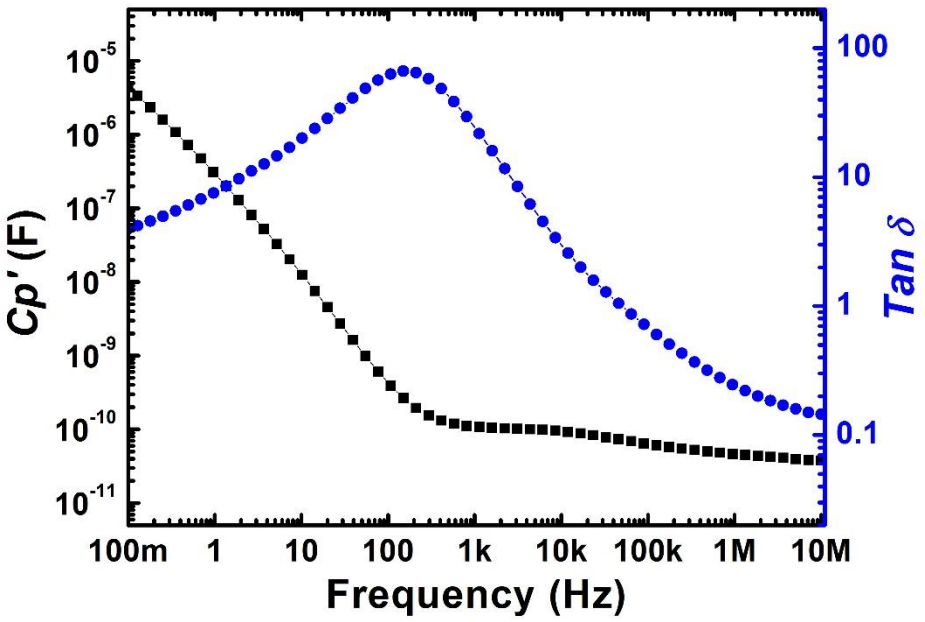
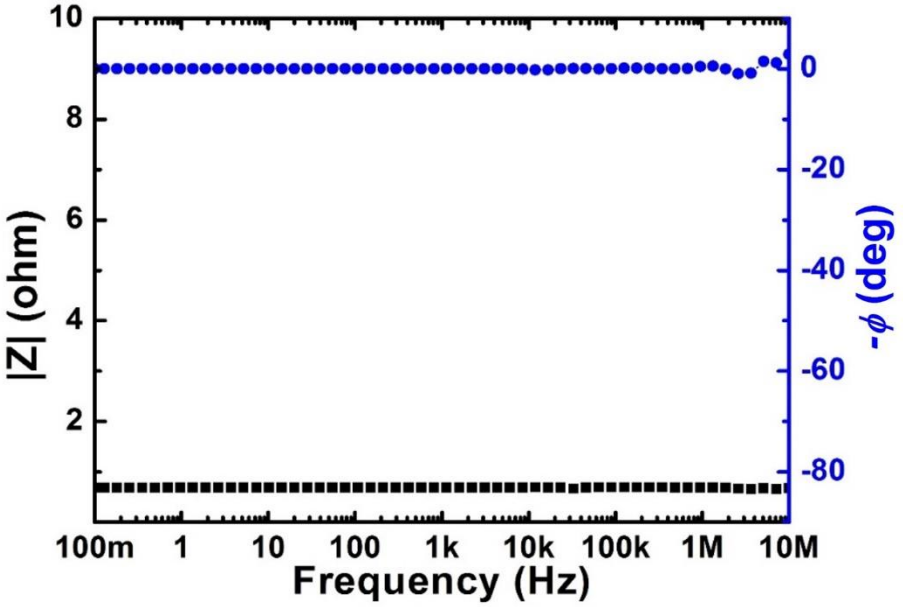
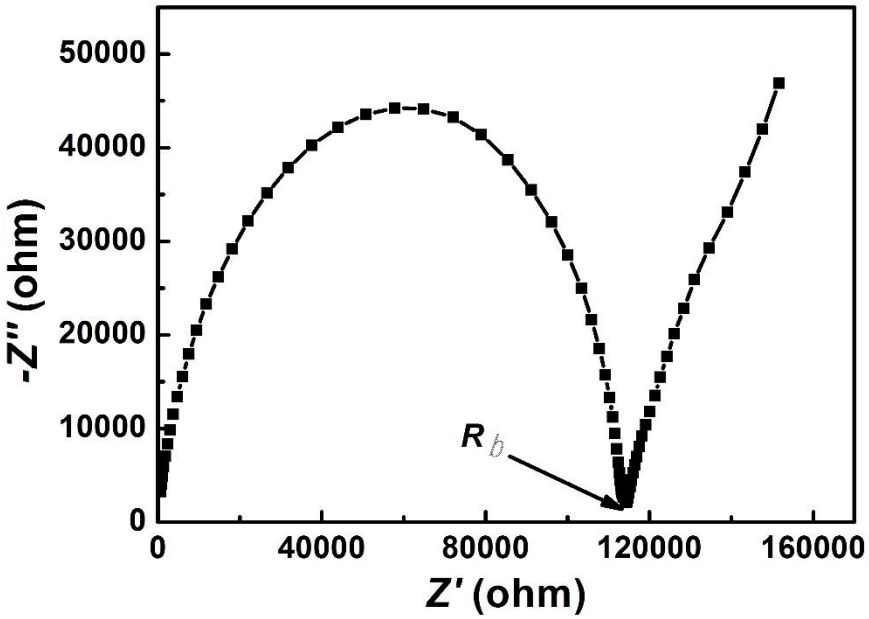
Supplementary Figures



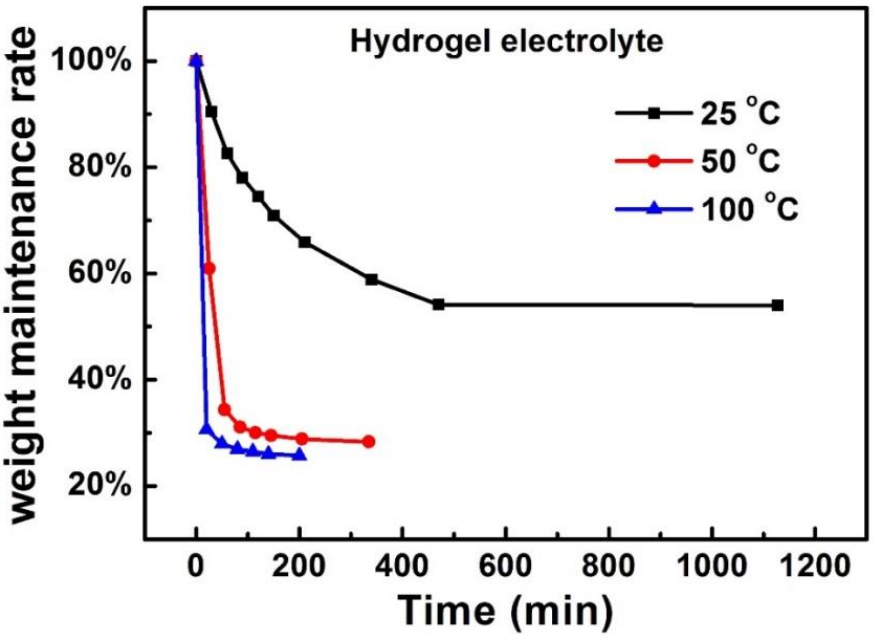
Supplementary Fig.1. Plot of capacitance (*Cp'*) and dielectric loss (*Tan δ*) versus testing frequency of ICE.



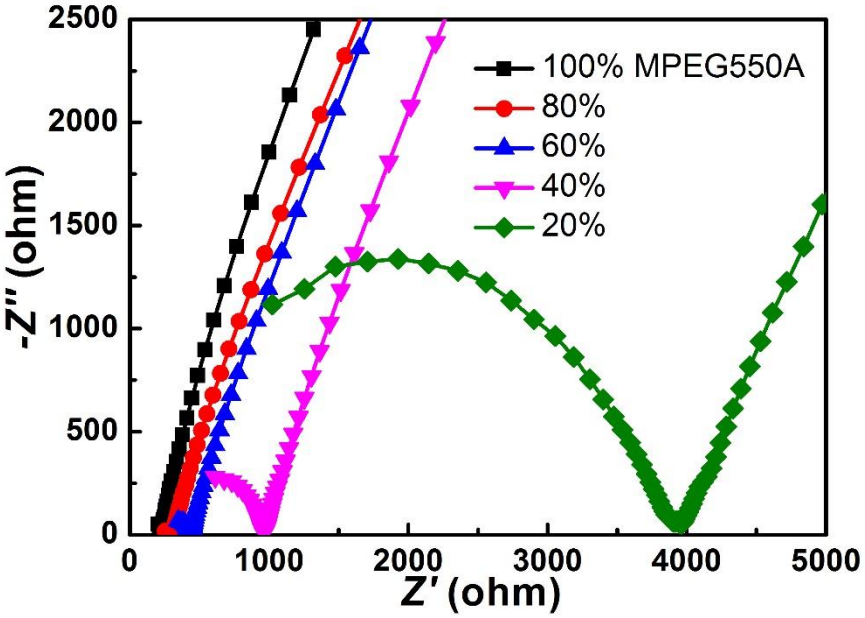
Supplementary Fig.2. Plot of impedance magnitude ($|Z|$) and negative phase angle ($-\phi$) versus testing frequency of carbon sponge.



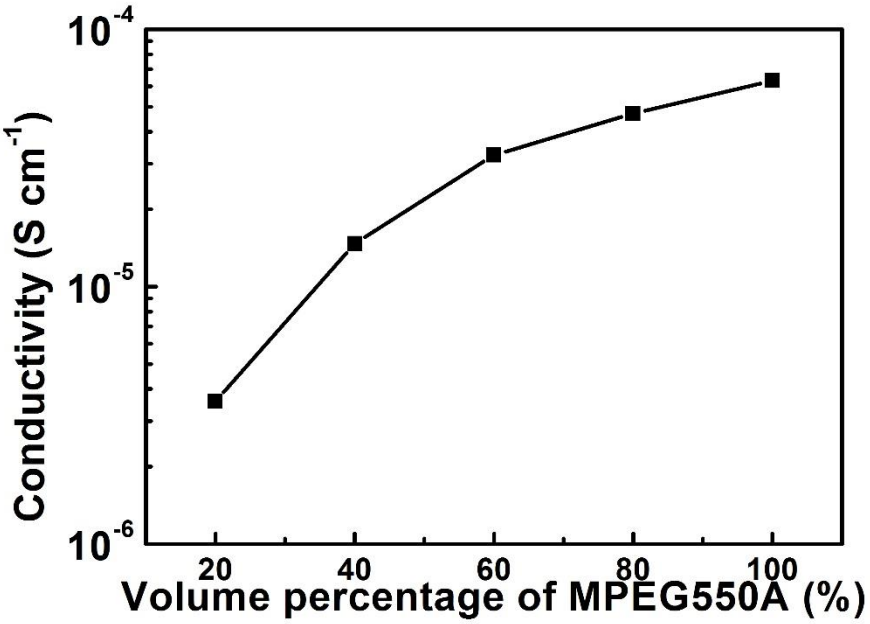
Supplementary Fig.3. Nyquist plot of impedance spectrum of ICE at room temperature. R_b represented the bulk resistance of testing ICE.



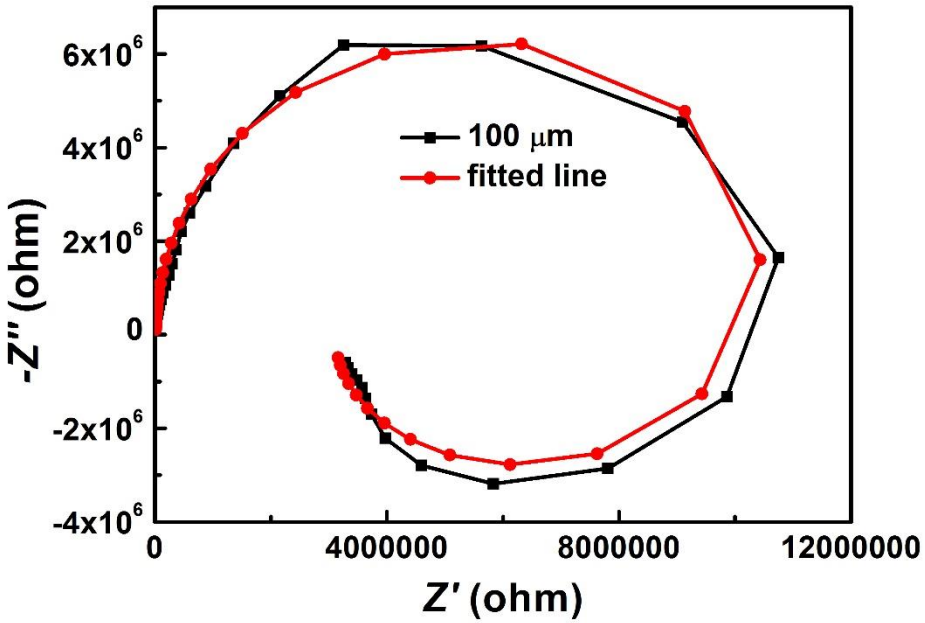
Supplementary Fig.4. Environmental stability testing of hydrogel electrolyte at open air. Plots of weight maintenances of hydrogel electrolyte at different temperature versus time.



Supplementary Fig.5. Nyquist plots of impedance spectrum of copolymer ICEs at room temperature. The percentages represent volumes of MPEG550A to the total monomer volumes.



Supplementary Fig. 6. Conductivities of the copolymer ICEs with different MPEG550A volume percentages.



Supplementary Fig.7. Nyquist plots of impedance spectra of 100 μm thickness film covered touch sensor. The red line was the line of fitted results. The frequency range was 1 MHz-1 KHz. The insert was the fitted circuit.