

SUPPLEMENTARY MATERIAL

Using Metal-Organic Framework HKUST-1 for the Preparation of High-Conductive Hybrid Membranes Based on Multiblock Copolymers for Fuel Cells

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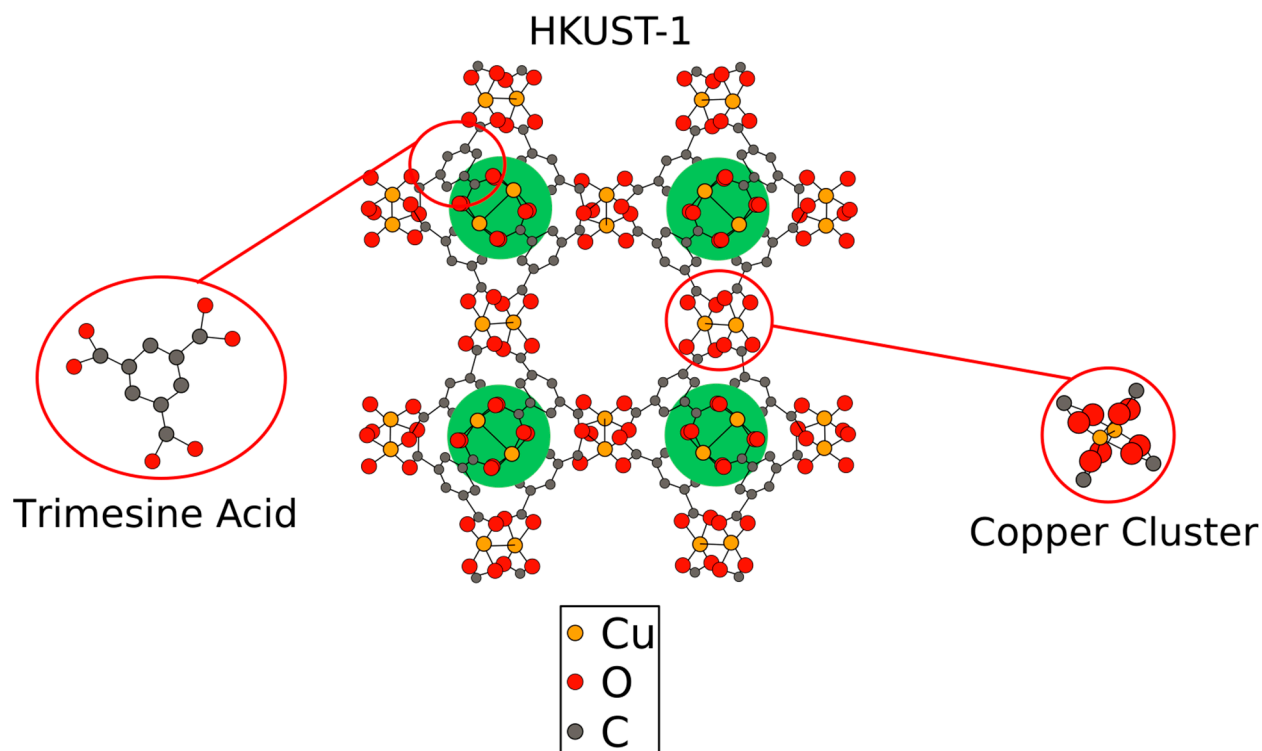


Figure S1 Metal-organic framework structure HKUST-1.

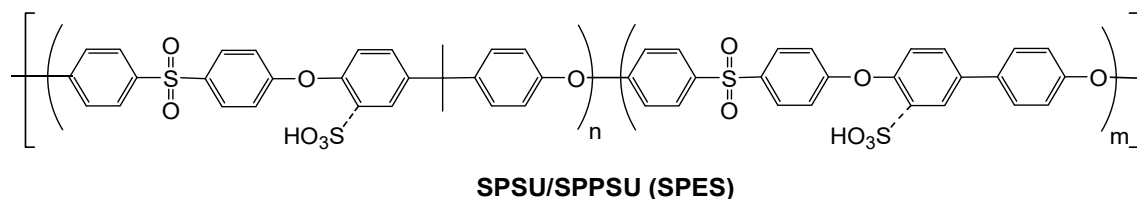


Figure S2. Sulfonated Multiblock Copolymer (SPES).

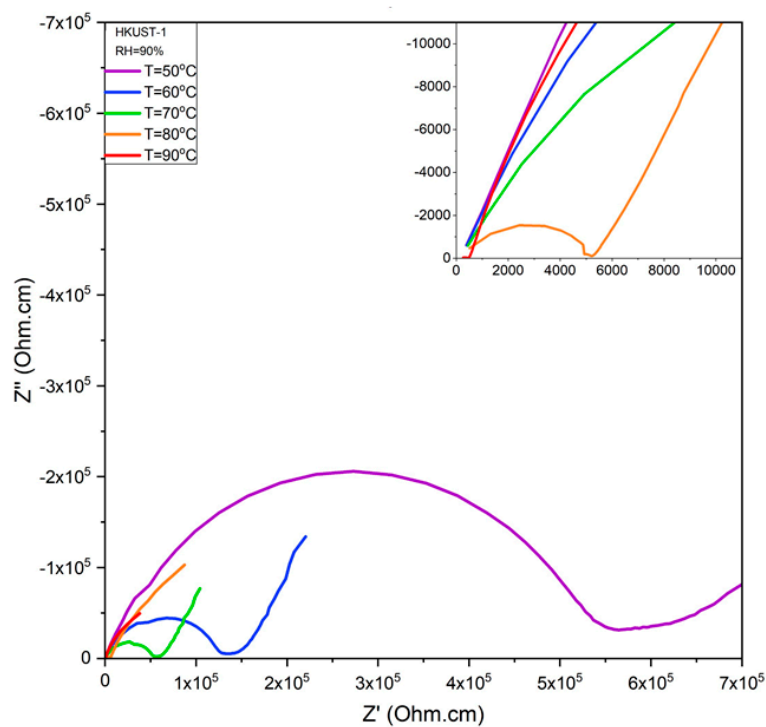


Figure S3. Impedance Nyquist plot of metal-organic structure HKUST-1 at different temperatures.

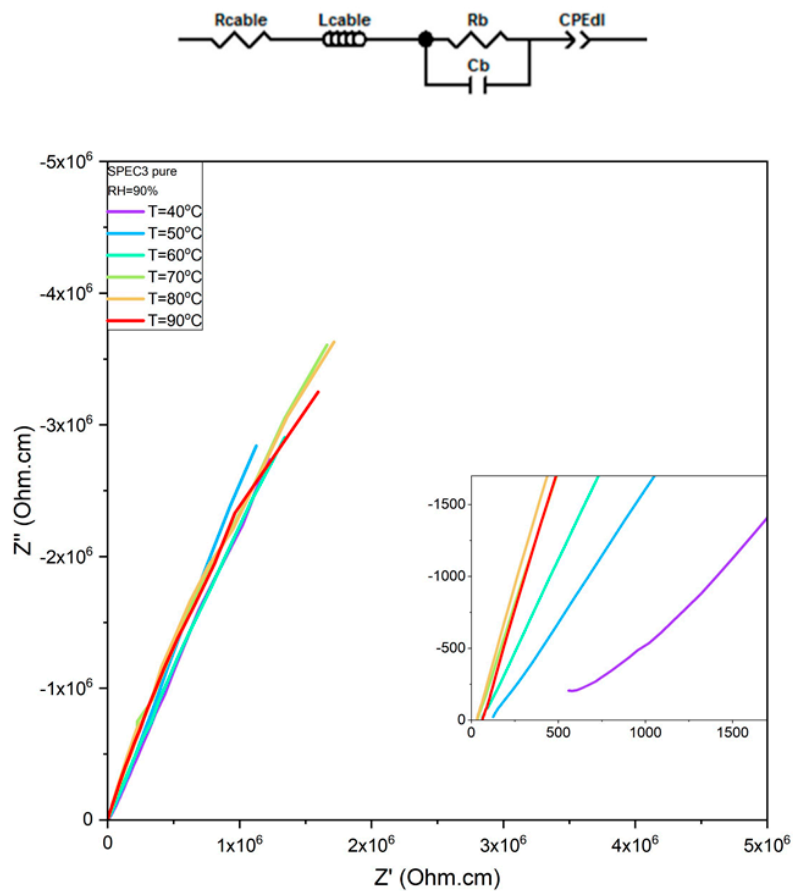


Figure S4. Simplified equivalent circuit for the conducting hybrid membrane sandwiched between two electrodes. R_{cable} and L_{cable} , represent the impedance and

inductance of cables and the empty cell, respectively. CPE_{dl} (constant phase element) represents the contribution of the membrane/electrode interfaces. R_b and C_b represent the bulk membrane resistance and capacitance, respectively. Impedance Nyquist plot of pristine SPES membrane at different temperatures.

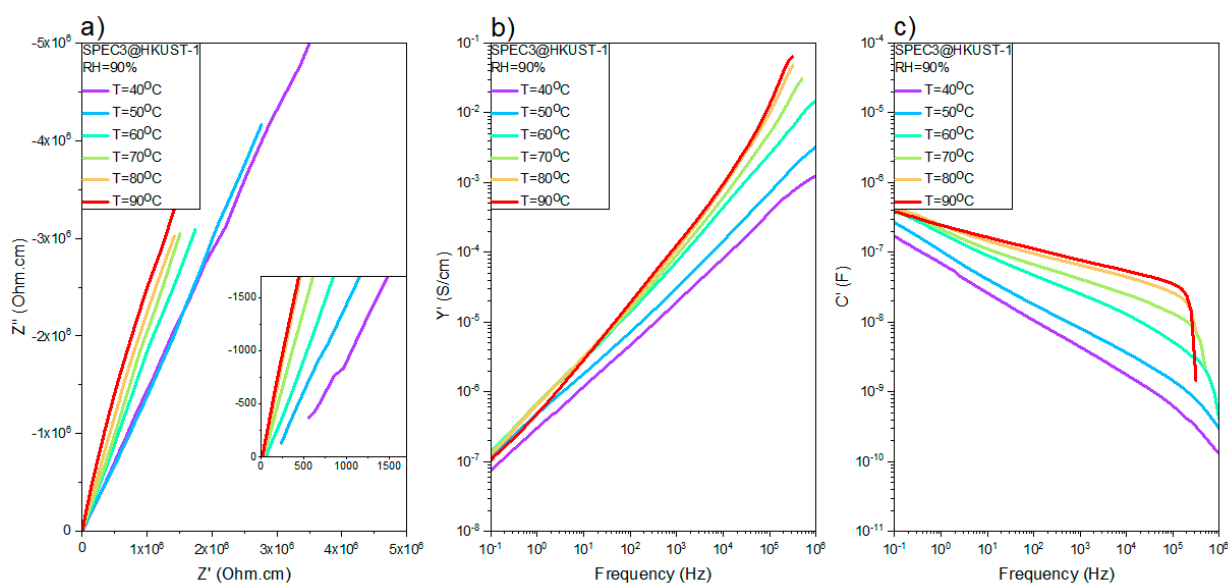


Figure S5. Typical Nyquist plots for SPES@HKUST-1 membrane.

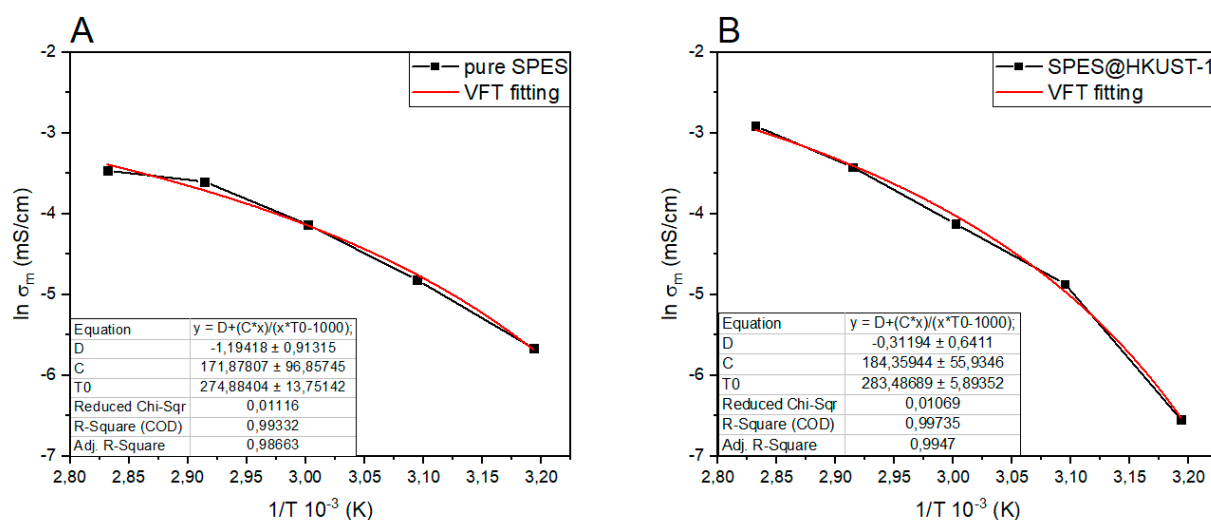


Figure S6. VTF fitting of the conductivity data from A) pristine SPES membrane and B) hybrid SPES@HKUST-1 membrane.

Table S1. Parameters of the VTF equation obtained by fitting the conductivity data

VTF parameters	Pure SPES	SPES@HKUST-1
T_0 (K)	274	283
E_a^{VTF} eV	0.034	0.036