Supporting Information

Highly stretchable, adhesive and 3D-printable eutectic ion conductor for wearable electronics and self-powered sensors

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Section S1 Supplementary Tables

Table S1. The compositions of EICs with various x (y=2).

Sample	LiTFSI (g)	AAm (g)	EG (g)	AMCO (g)	PEGDA400 (μL)	TPO (mg)
$AMMO_{0-2}$	3.15	1.56	2.72	0	2.8	3.1
$AMMO_{0.5-2}$	2.87	1.42	2.48	1.41	5.0	5.7
$AMMO_{1-2}$	3.15	1.56	2.72	3.10	8.3	9.3
$AMMO_{1.25-2}$	3.15	1.56	2.72	3.87	9.7	10.9
$AMMO_{1.5-2}$	3.15	1.56	2.72	4.65	11.1	12.4

Table S2. The compositions of EICs with various x (y=2). The fixed amount of PEGDA was 9.7 μL.

Sample	LiTFSI (g)	AAm (g)	EG (g)	AMCO (g)	PEGDA400 (μL)	TPO (mg)
$AMMO_{0-2}$	3.15	1.56	2.72	0	9.7	3.1
$AMMO_{1-2}$	3.15	1.56	2.72	3.10	9.7	9.3
$AMMO_{1.25-2}$	3.15	1.56	2.72	3.87	9.7	10.9
$AMMO_{1.25-2}$	3.15	1.56	2.72	4.65	9.7	12.4

Table S3. The compositions of EICs with various y (x=1.25).

Sample	LiTFSI (g)	AAm (g)	EG (g)	AMCO (g)	PEGDA400 (μL)	TPO (mg)
$AMMO_{1.25-1.5}$	3.15	1.56	2.04	3.87	9.7	10.9
$AMMO_{1.25-2}$	3.15	1.56	2.72	3.87	9.7	10.9
$AMMO_{1.25-2.5}$	3.15	1.56	3.40	3.87	9.7	10.9
$AMMO_{1.25-3}$	3.15	1.56	4.09	3.87	9.7	10.9

Section S2 Supplementary Figures

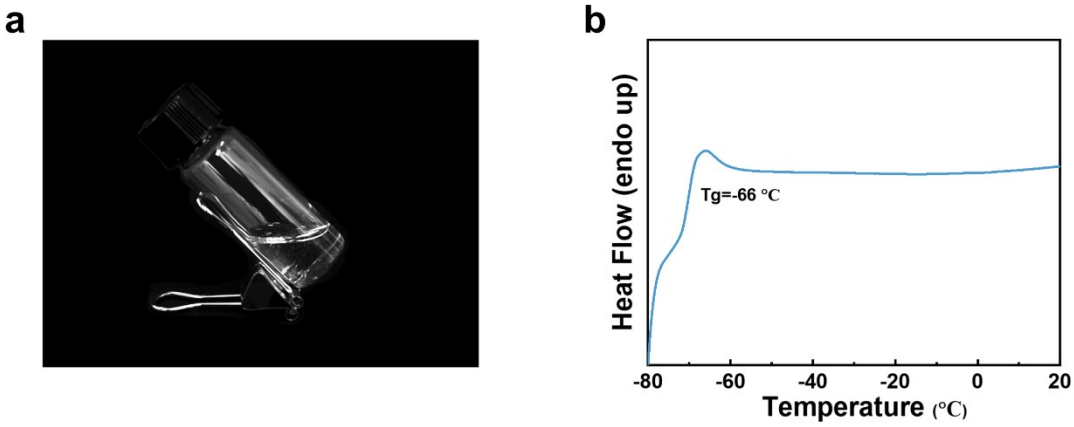

Figure S1. a) Photo of prepared ES, b) differential scanning calorimetry curves of ES.

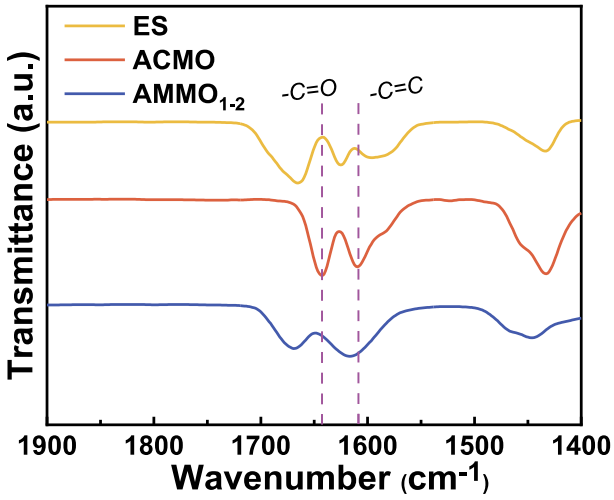

Figure S2. FT-IR spectra of ES, ACMO, $AMMO_{1\text{-}2}$.

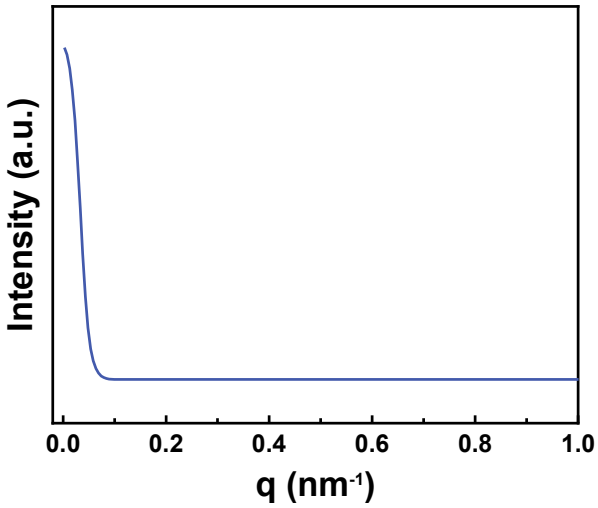

Figure S3. 1D-SAXS profile of $AMMO_{1.25\text{-}2}$.

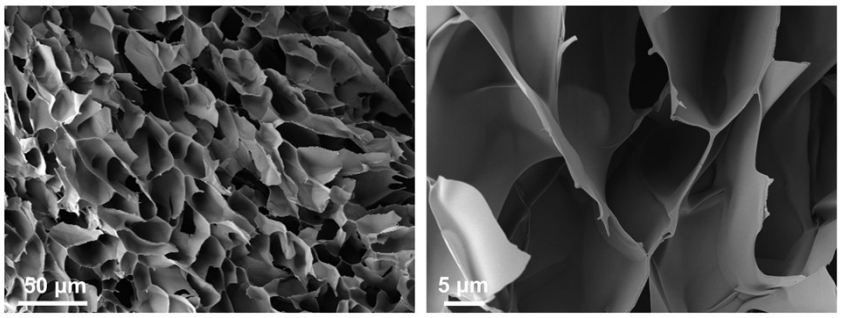

Figure S4. SEM of $AMMO_{1.25\text{-}2}$ with water removed.

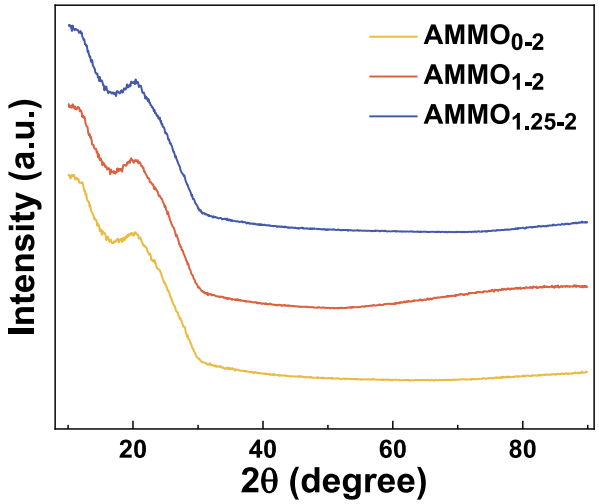

Figure S5. X-ray diffraction patterns of $AMMO_{x\text{-}2}$.

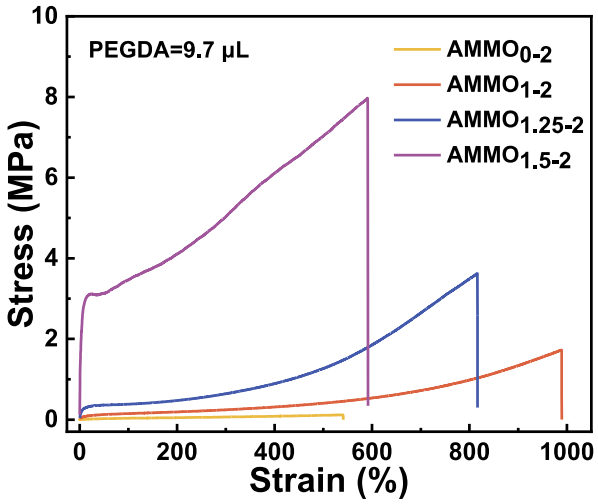

Figure S6. Stress-strain curves for EICs with varying ACMO contents. The amount of fixed PEGDA was 9.7 μL.

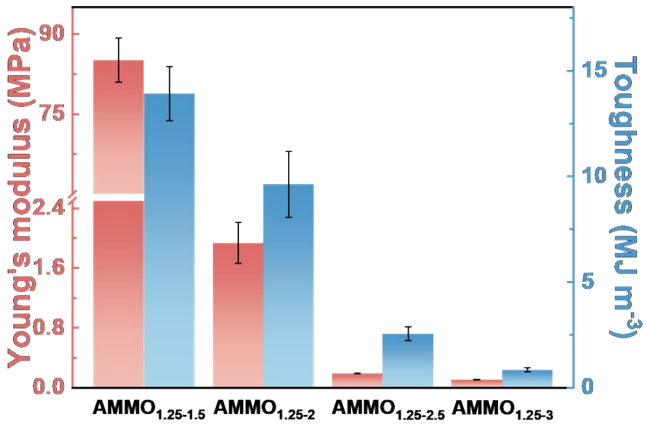

Figure S7. Stress-strain curves of $AAMO_{1.25\text{-}y}$ with different EG contents, (b) and their Young's modulus and toughness.

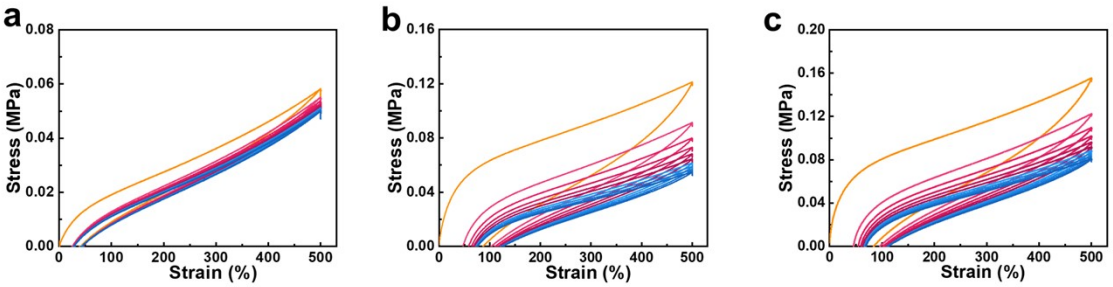

Figure S8. Cyclic loading-unloading curves of a)$AMMO_{0\text{-}2}$, b)$AMMO_{1\text{-}2}$ and c)$AMMO_{1.25\text{-}2}$.

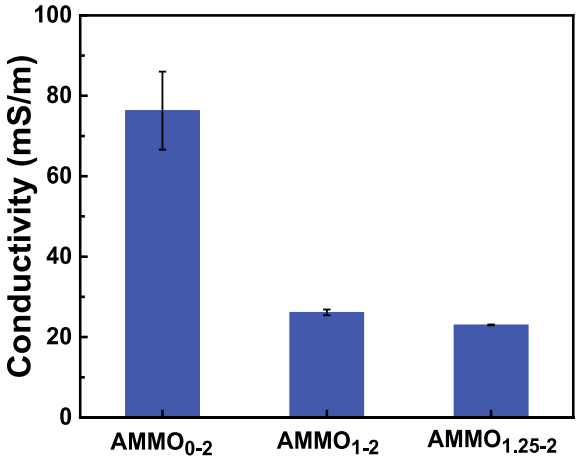

Figure S9. The conductivity of the EICs.

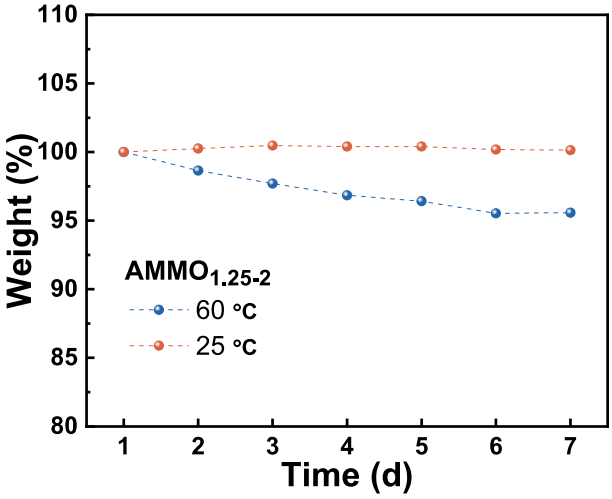

Figure S10. Mass change of $AMMO_{1.25\text{-}2}$ in 7 days when exposed to different temperatures.

Figure S11. Triboelectric output properties of E-TENG (pair with wood): a) open-circuit voltage, b) short-circuit current.

Figure S12. 3D printed items: a) butterfly, b) shell, and c) a square surface with pyramid structures.

Supplementary Movie

Movie S1. Touch sensing applications of the E-TENG: a flexible touch switch for the protection of cultural relics.