

Supporting Information

Fast self-healing multifunctional polyvinyl alcohol nano-organic composite hydrogel as building blocks for highly sensitive strain/pressure sensors

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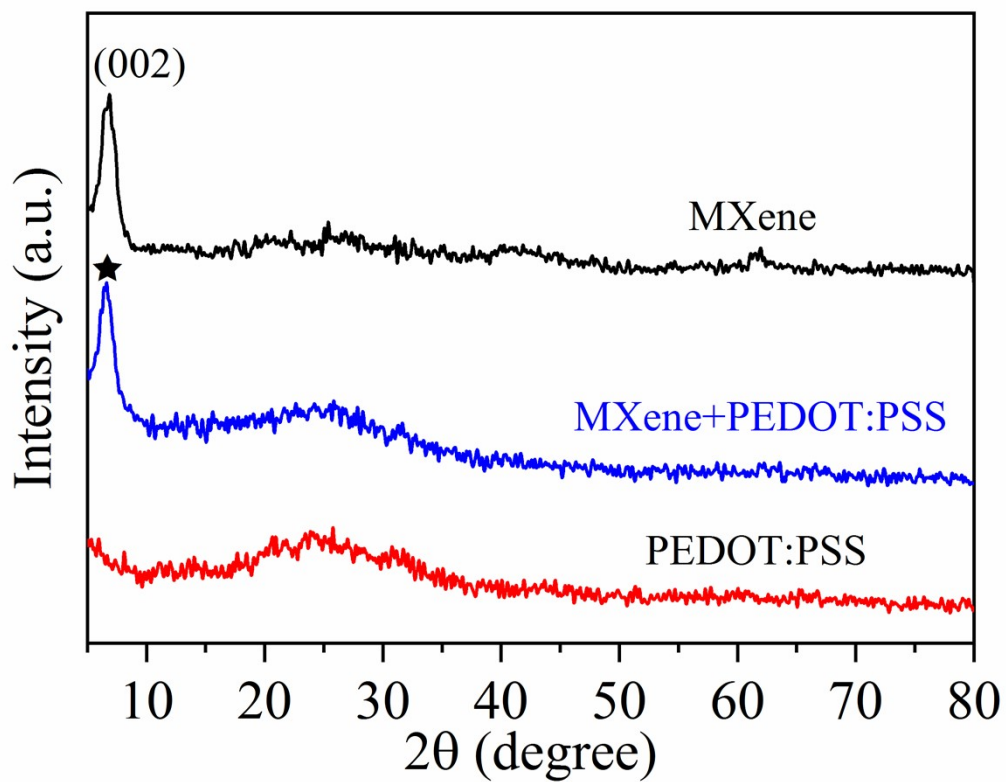


Fig. S1. XRD patterns of conductive fillers MXene and PEDOT:PSS.

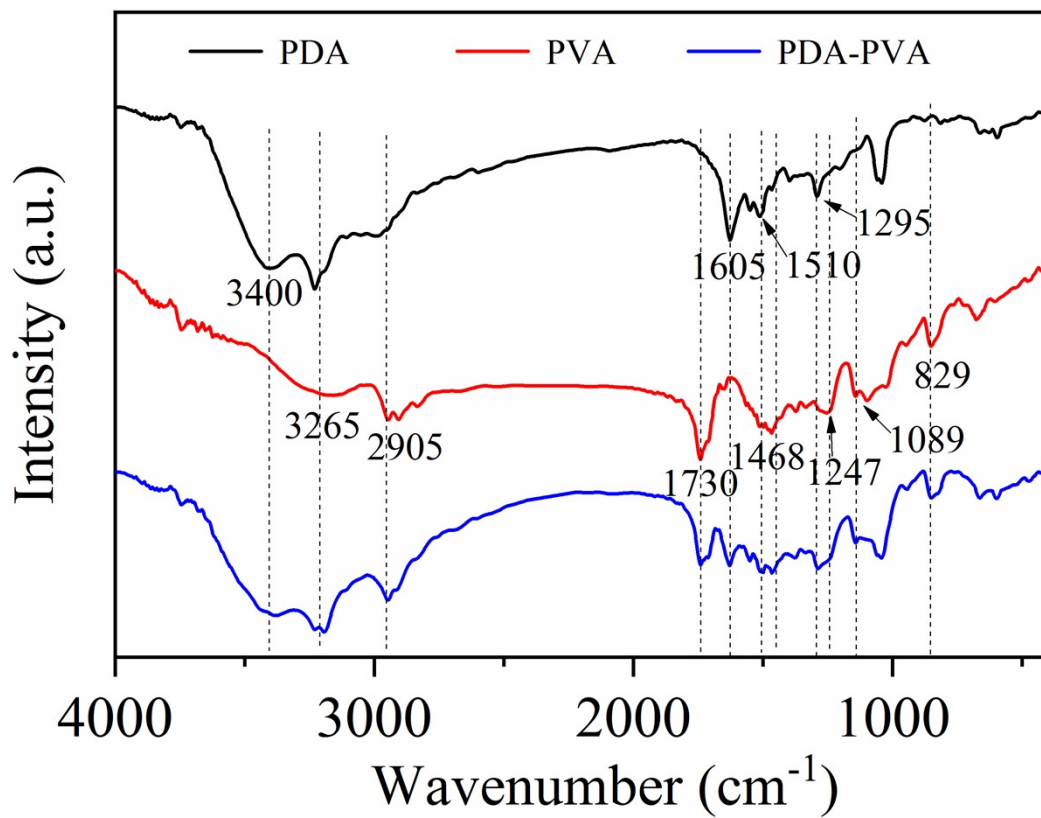


Fig. S2. FTIR spectrum of PDA, PVA and PDA-PVA.

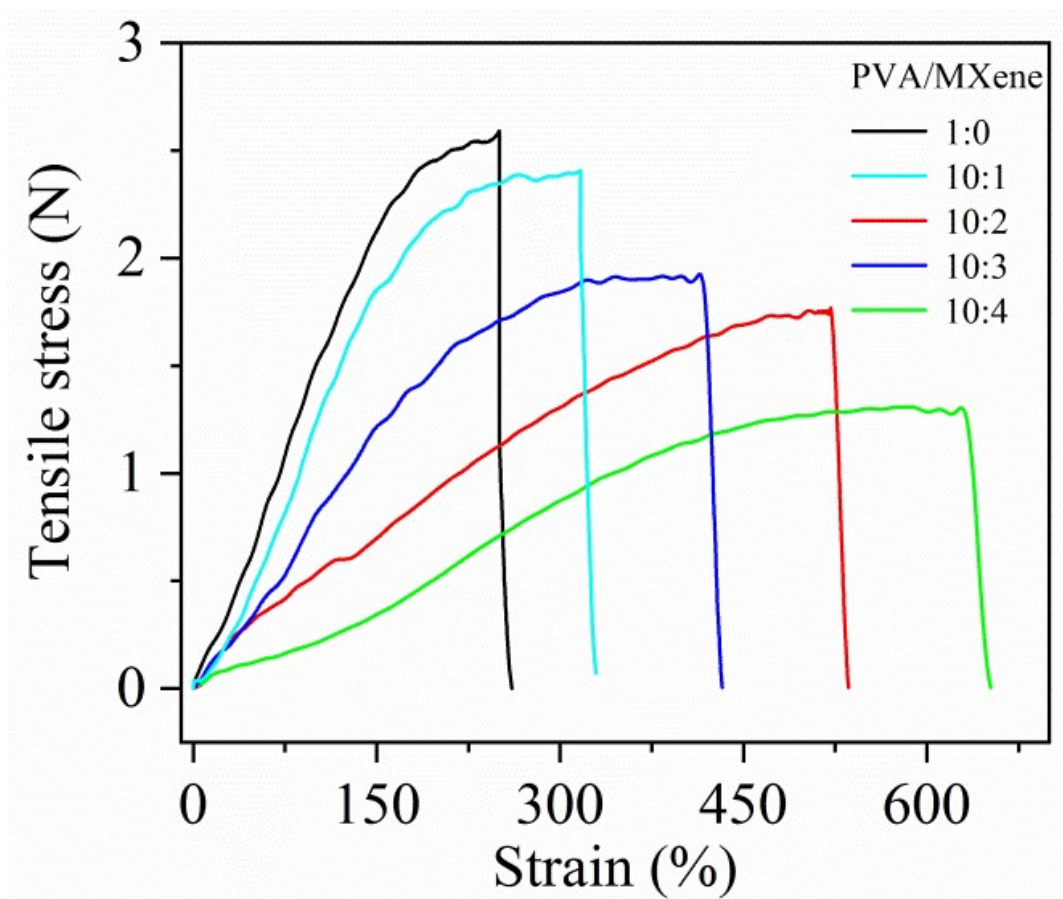


Fig. S3. Tensile fracture curves of hydrogels with different MXene contents.

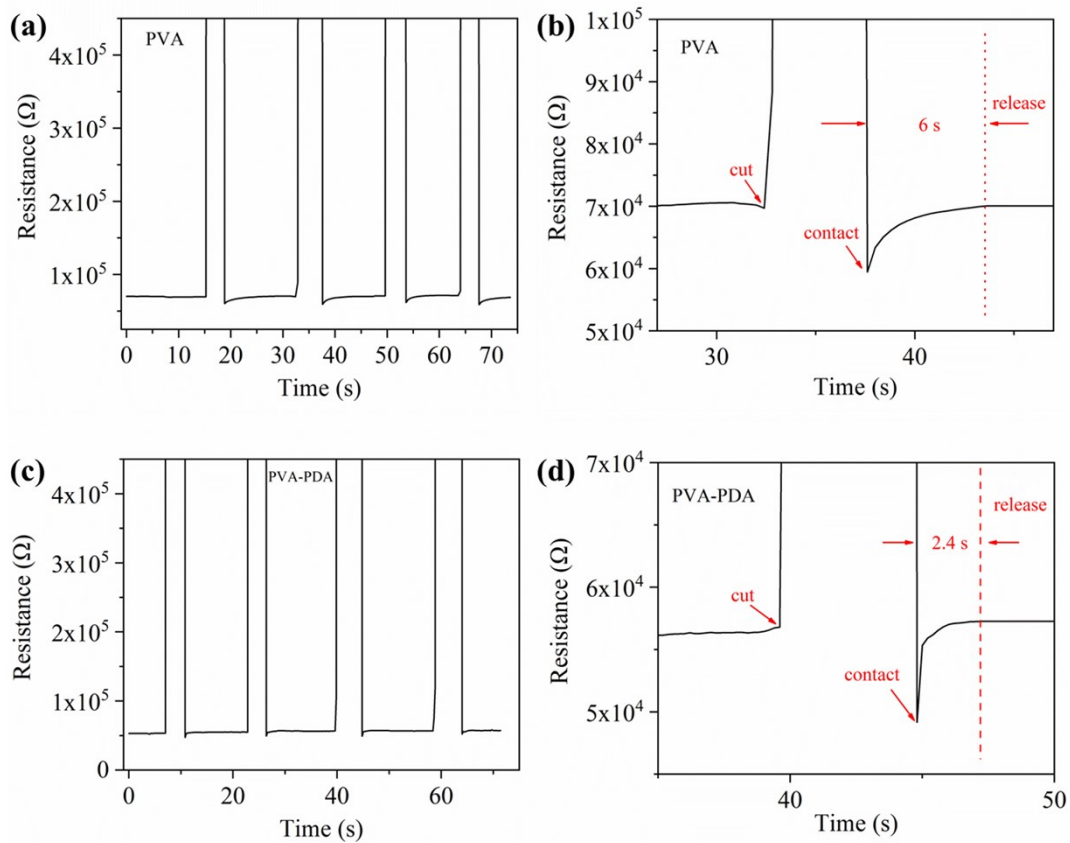


Fig. S4. (a) Cut healing cycle of PVA hydrogel at the same location and (b) amplification of the self-healing process. (c) Cut healing cycle of PVA-PDA hydrogel at the same location and (d) amplification of the self-healing process.

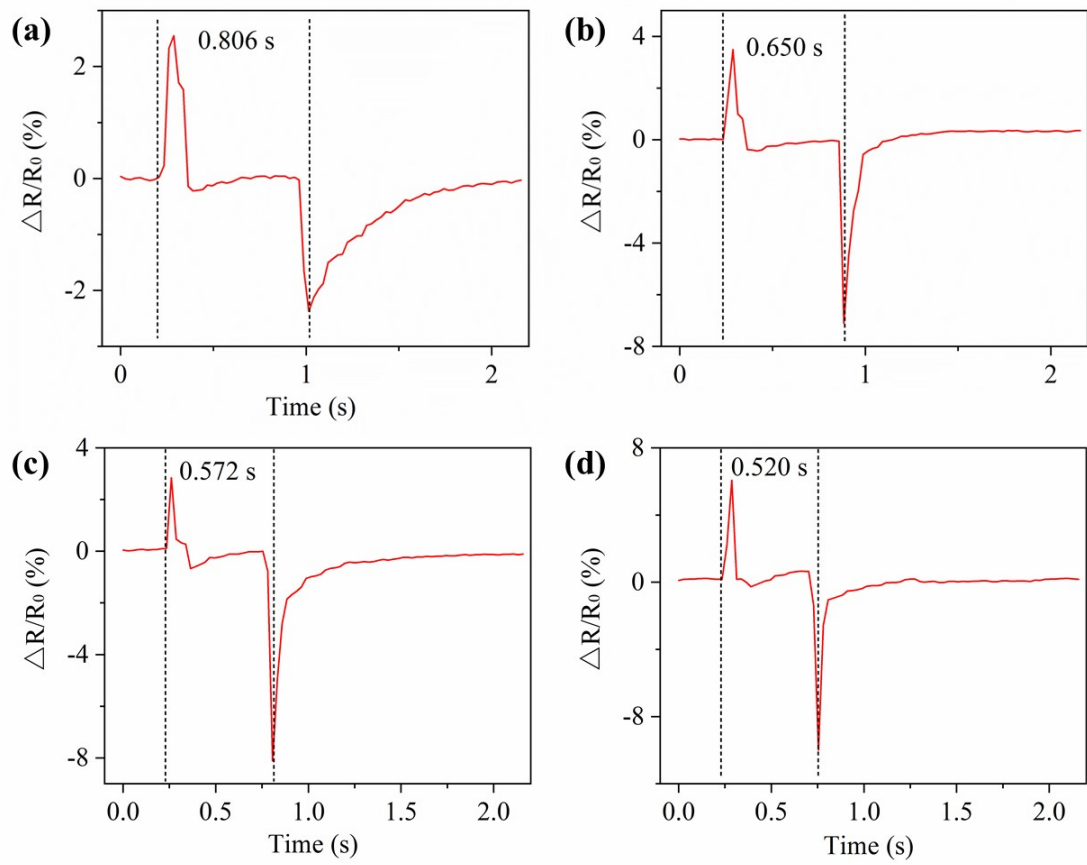


Fig. S5. (a), (b), (c), (d) four different positions of the sphere through the hydrogel at different times.

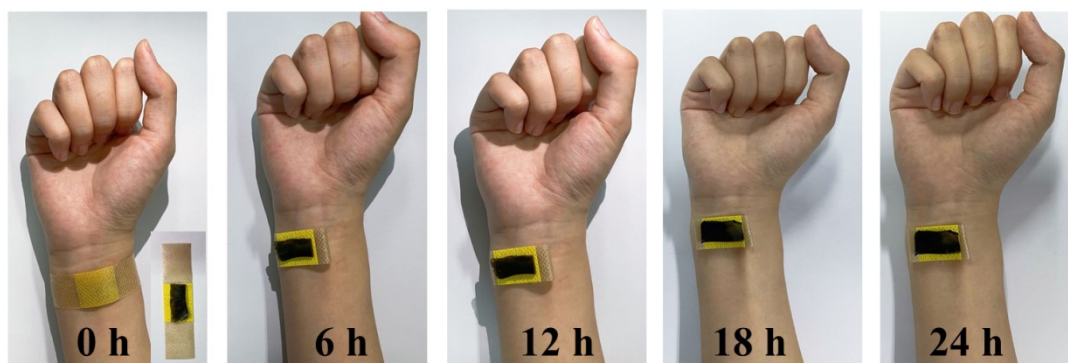


Fig. S6. The hydrogel sensor was attached to the skin for 24 h to test its biocompatibility.

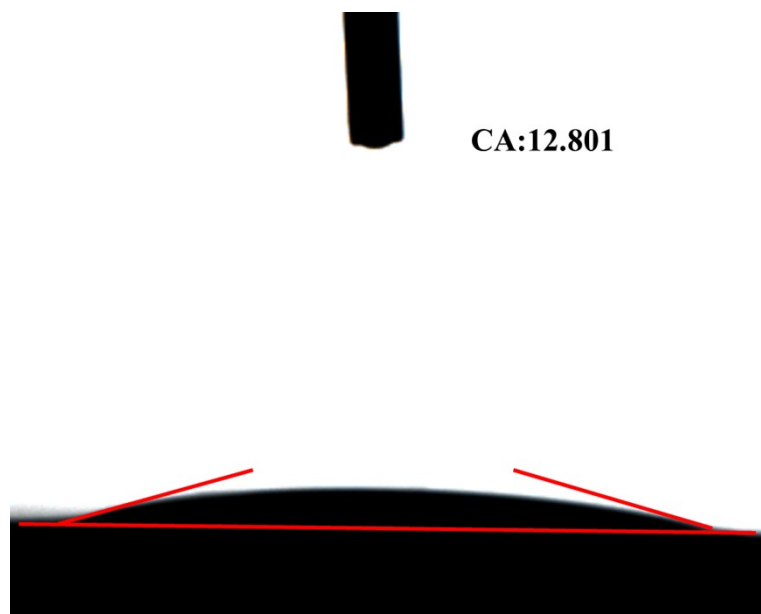


Fig. S7. Water contact angle test of PVA-MXene-PEDOT:PSS-PDA hydrogel.

Table 1. Properties comparison with previous studies.

Materials	Working range (%)	Gauge factor	Self-healing	Refs
PVA/Gly/CB/CNT	643.2	2.01	√	[1]
HPC/PVA	975	0.984	×	[2]
PAA/PVA/Fe ³⁺ /CNT	550	1.61	√	[3]
PSBMA/PVA	300	1.5	×	[4]
Poly α -lipoic acid	300	1.46 (0–50%), 2.30 (50– 150%), 3.69 (150– 300%)	√	[5]
PDA/talc/PAM-KCl	50-1000%	0.69	√	[6]
PAM/PDMS/LiCl	40	0.84	×	[7]
PAA-rGO	500	1.32	√	[8]
PEDOT:PSS/Acrylic acid /PAAc	>100%	~1.1 at 100%	×	[9]
PVA-MXene-PEDOT:PSS-PDA	700	2.55	√	This paper

References

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