Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Information

Preparation and properties of polyacrylamide/polyvinyl alcohol physical physical double network hydrogel

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Preparation and properties of polyvinyl alcohol / acrylamide physical double network hydrogel

Table. S1 The feed recipe of the hydrogels

Gels	AM(wt%)[a]	SMA(mol%)[b]	SDBS(mol%)[b]	KPS(mol%)[b]	PVA(wt%)[a]
HAPAM	10	1.5	3	0.1	0
HAPAM-PVA-1	10	1.5	3	0.1	1
HAPAM-PVA-2	10	1.5	3	0.1	2
HAPAM-PVA-4	10	1.5	3	0.1	4
HAPAM-PVA-6	10	1.5	3	0.1	6

[a] relative to deionized water

[b] relative to AM

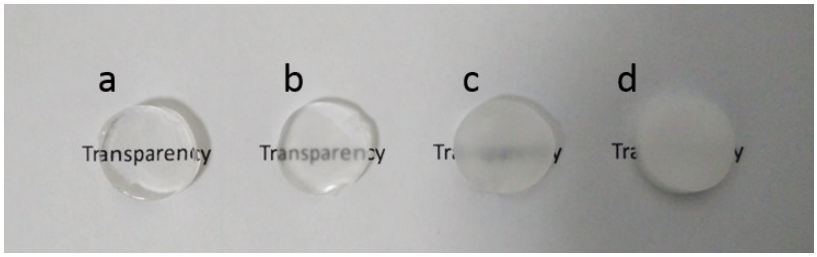

Fig. S1 Photos of the prepared hydrogels, which has been cut into 2 mm thick slice,: (a) HAPAM, (b) HAPAM/PVA-4, (C) HAPAM/PVA-4-1, (D) HAPAM/PVA-4-3

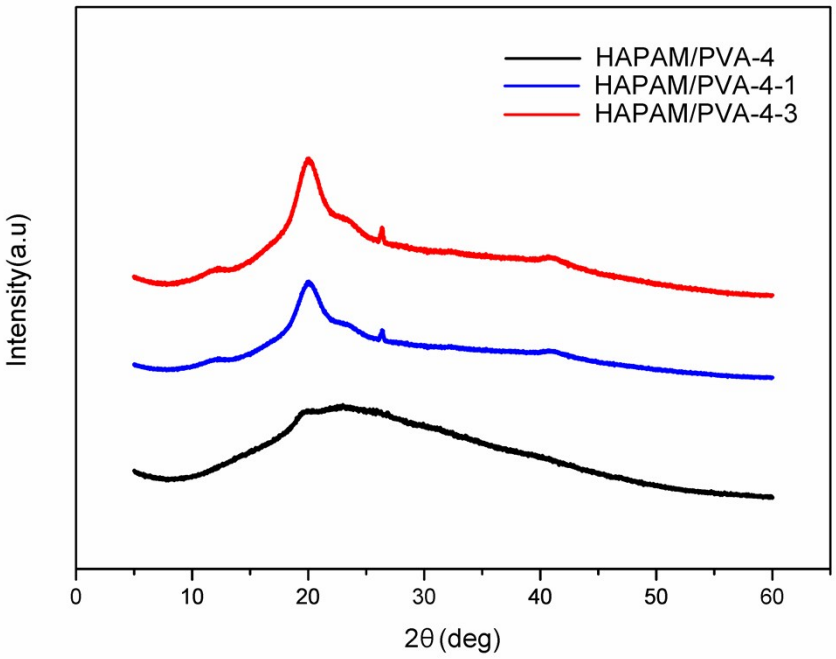

Fig. S2 XRD patterns of the HAPAM/PVA-4 gels before and after various cycle of freezing/thawing treatment

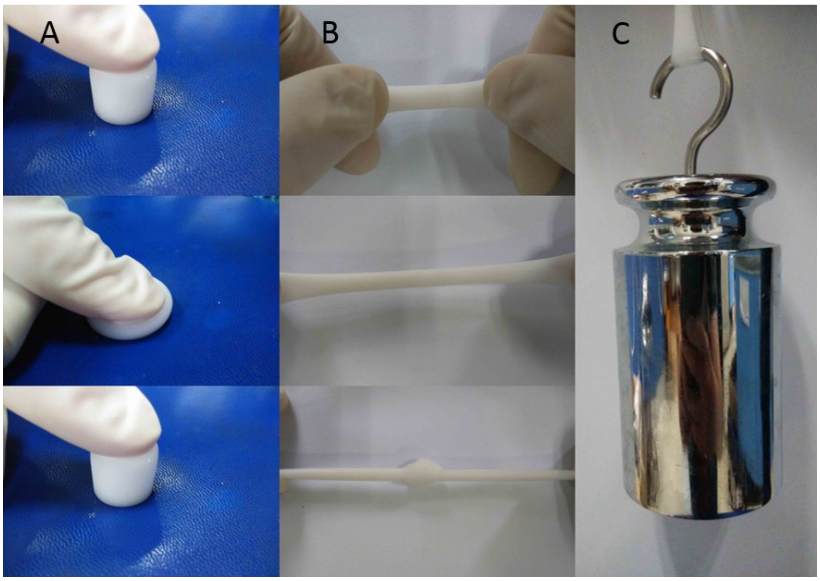

Fig. S3 Photos of HAPAM/PVA-4-3 exhibiting excellent mechanical performance: (a) compression and recovery (b) Stretching and stretching after being knotted (c) Hanging weight of 2 kg

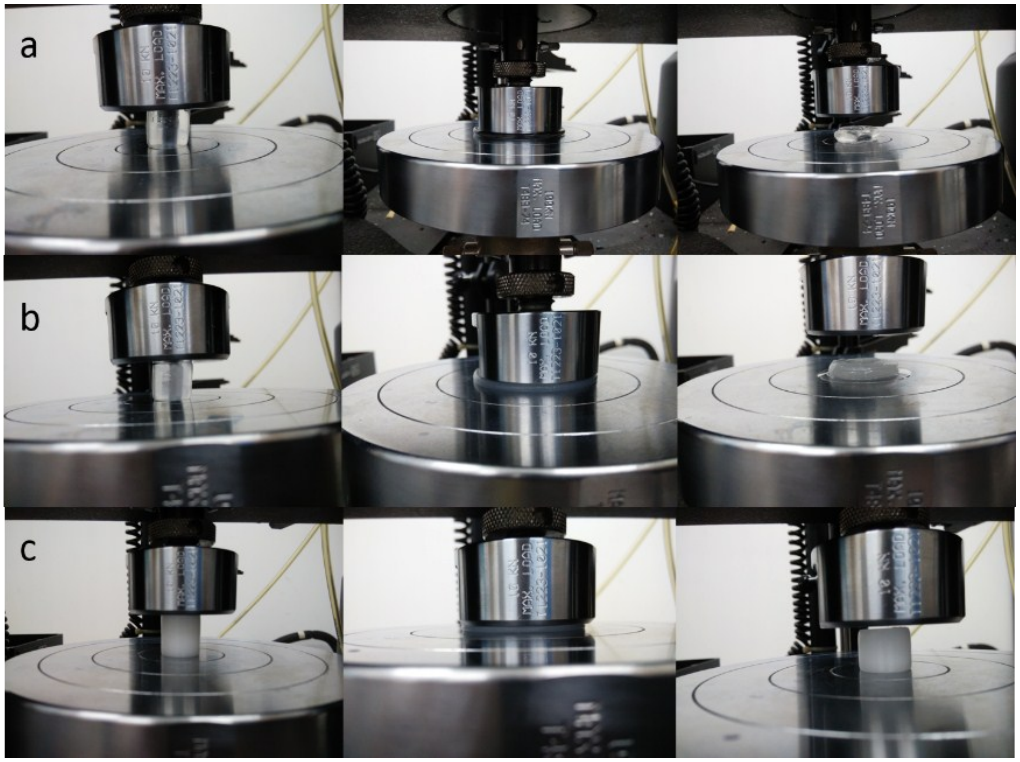

Fig. S4 Compression test photos: (a) HAPAM (b) HAPAM/PVA-4 (c) HAPAM/PVA-4-24

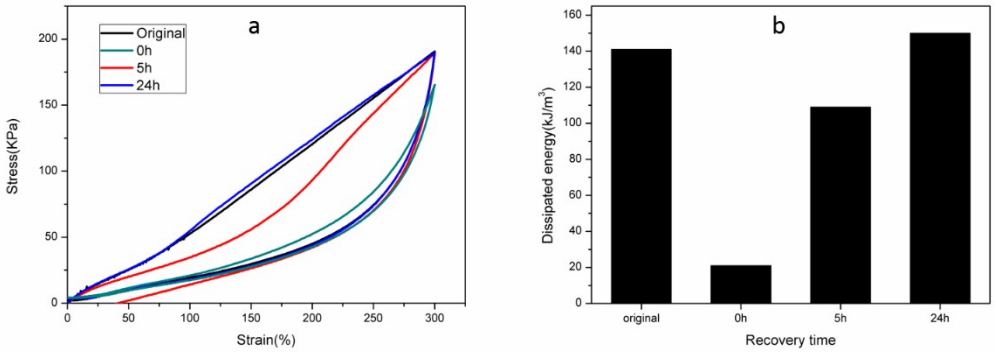

Fig. S5 (a) Recoverable loading–unloading tensile curves of HAPAM/PVA-6-3 gel at a strain of 300%. (b) Dissipated energies of HAPAM/PVA-6-3 calculated from from the hysteresis loops