

Supporting Information

Single network double cross-linkers (SNDCL) hydrogels with excellent stretchability, self-recovery, adhesion strength, conductivity for human motion monitoring

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Table 1. Tensile length comparison of PAAm hydrogels among this work and those in literatures.

References & Years	Components	Tensile length
2016 ¹	PSS/Acrylamide	525%
2017 ²	PAAM/CS	1000%
2017 ³	PAAm/LiCl	2000%
2017 ⁴	Gelatin/PAAm	3500%
2019 ⁵	HPAAm/CS-c-MWCNT	2761%
2019 ⁶	Amy/PAAm/PVA DN	549%
2019 ⁷	PVA/PAAm/DA	220%
2019 ⁸	PAAM/PVP	22000%
2019 ⁹	AG/PAAm/LiCl	2185%
2019 ¹⁰	PAM/Au@PDA GW	900%
Our work	PAAm (MBA/CA)	6564%

Table 2. Adhesion strength comparison of hydrogels among this work and those in literatures

References & Years	Components	Adhesion strength / MPa			
		Metal	Hogskin	Glass	wood
2015 ¹¹	PAA/dopamine /ZnCl ₂	6.1			
2017 ¹²	PDA/clay/PAM	0.17	0.03	0.12	
2017 ¹³	Poly(catechol-styrene)	2.9			
2018 ¹⁴	ACC/Polyacrylic acid	4.75		0.6	3.2
2018 ¹⁵	PDA/CS/PAM		0.03		
2018 ¹⁶	Soluble starch/ NaSS/MOBAB/GO	60.5	0.13		
2018 ¹⁷	Dopamine/talc/PAM	0.82		0.4	0.6
2018 ¹⁸	PACG/Hap	0.13	0.11		
2018 ¹⁹	PAAm/PAA/DA		0.06		
2019 ²⁰	gelatin/glycerol/Na ₃ Cit	0.71		0.42	
2019 ²¹	CS/PAA DN nanocomposite	0.01		0.01	0.02
2019 ²²	POPEA-b-PEG/KPS/ acrylate nucleobase		0.01	0.05	
2019 ²³	acrylicacid/dopamine- functionalized hyaluronic acid/Fe(NO ₃) ₃	0.03	0.01		
2019 ²⁴	PVA/TA/CNC/borax	0.071	0.05	0.065	0.117
2019 ²⁵	PEGDA/PEG			0.0456	
Our work	PAAm (MBA/CA)	0.167	0.876	1.64	1.70

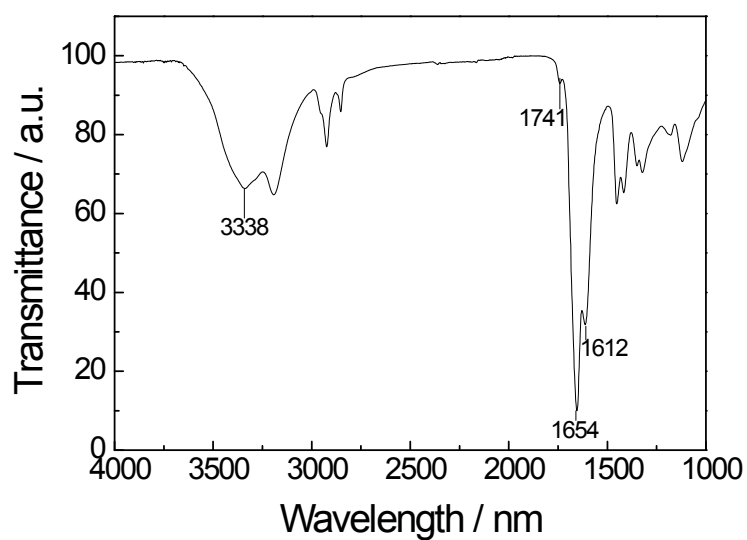


Figure S1. ATR-FTIR spectrum of the SNDCL PAAm hydrogel with **MBA** concentration of 0.006% and **CA** concentration of 0.03%.

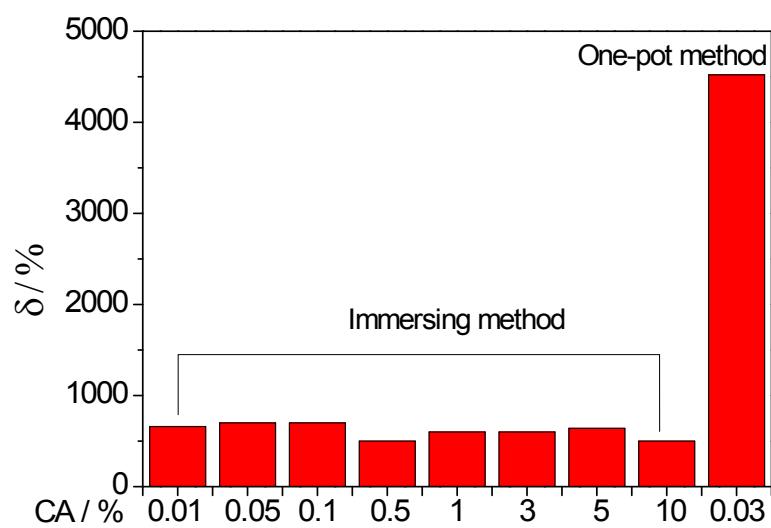


Figure S2. Stretchability of hydrogels prepared by double cross-linkers in immersing method and one-pot method with **MBA** concentration of 0.01% and different CA concentrations.

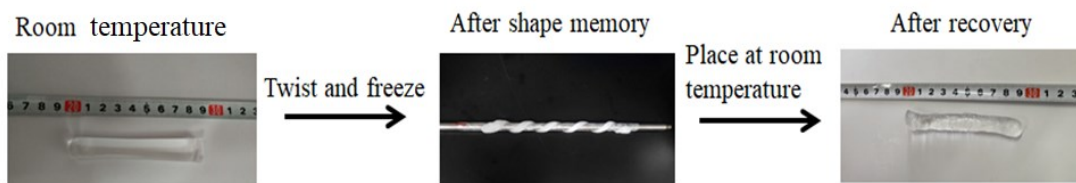


Figure S3. Shape recovery of the twisted and freezed SNDCL hydrogel after thawing.

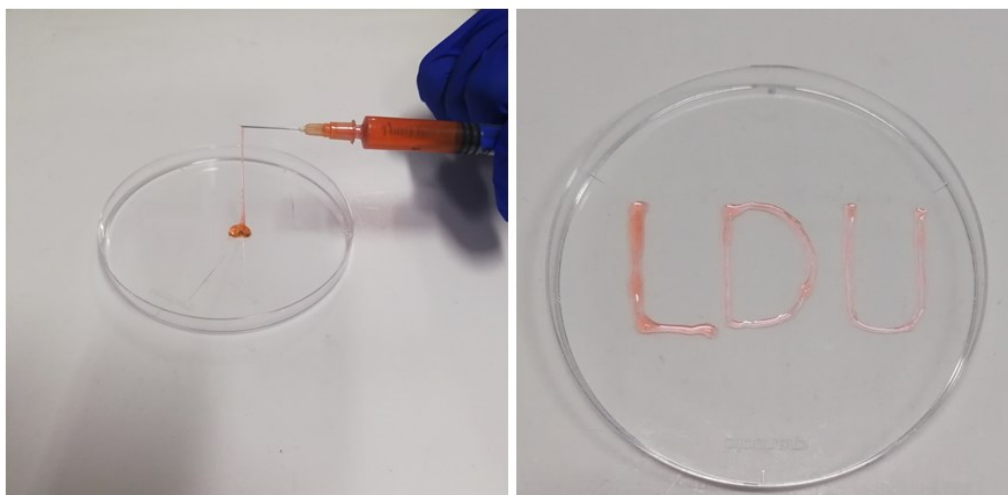


Figure S4. Injectability of the SNDCL hydrogel in a syringe with 20 G needle.



Figure S5. Adhesive ability of the SNDCL hydrogel lifting a 2 kg bottle of water.

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