

Investigation of structure-property-application relationships of the hydrogel-based solar vapor generator

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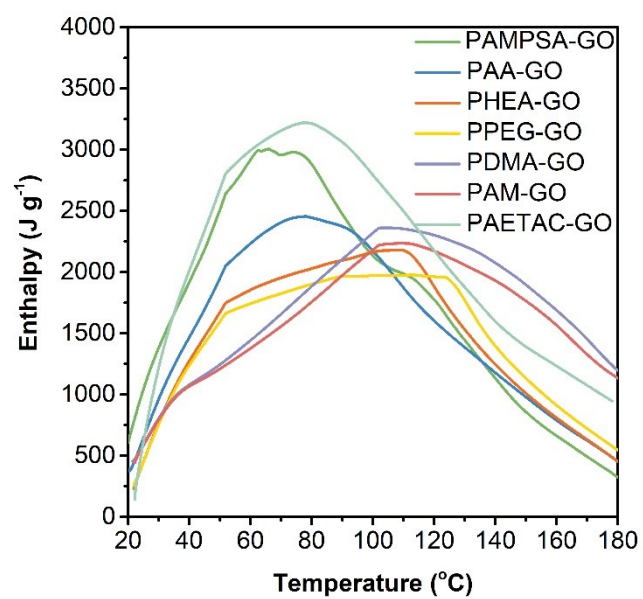


Figure S1. The calculated equivalent water evaporation enthalpy in the hydrogel samples at various temperatures by DSC-TGA.

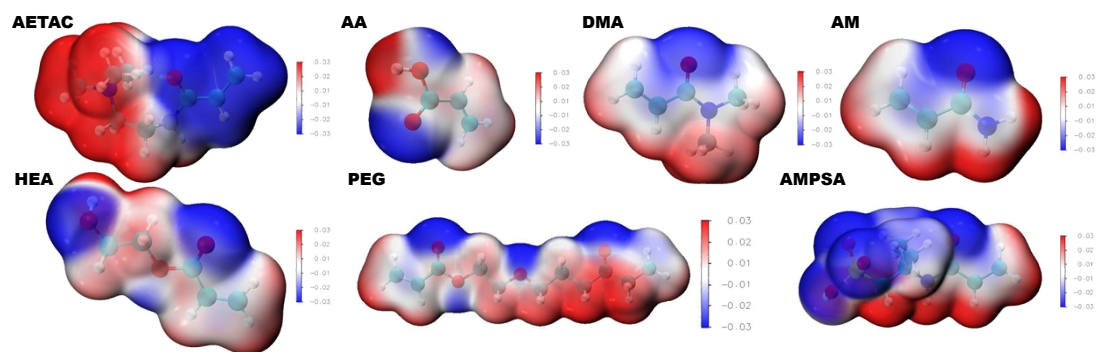


Figure S2. Electrostatic Potential Maps of the polymer repeating unit.

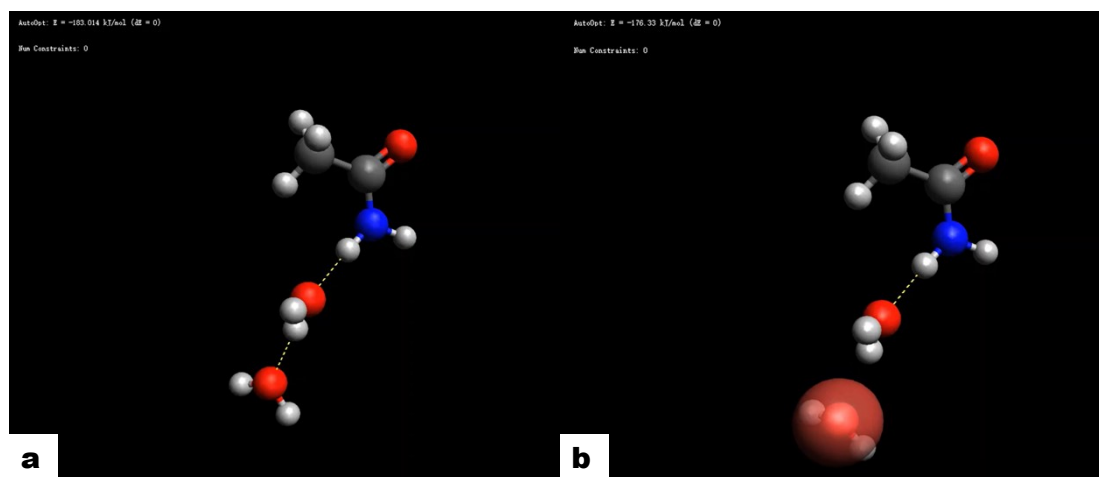


Figure S3. The molecule model and the automatic computed energy of (a) the -NH₂ group in PAM connected with two water molecules via hydrogen bonding and (b) the moment of dragging the second water molecule to break the hydrogen bonding between the water molecules.

Table S1. The energy E_0 and E_1 output by the *Avogadro*, and the simulated hydrogen bonding energy E_{hyd} of IW.

Sample name	E_0 (kJ mol ⁻¹)	E_1 (kJ mol ⁻¹)	E_{hyd} (kJ mol ⁻¹)
PAMPSA-GO	-361.19	-337.25	23.94
PAA-GO	-190.17	-173.00	17.17
PHEA-GO	-24.23	-11.72	12.51
PPEG-GO	150.36	159.99	9.64
PDMA-GO	-124.32	-115.36	8.96
PAM-GO	-183.01	-176.33	6.68
PAETAC-GO	4.32	31.10	26.78

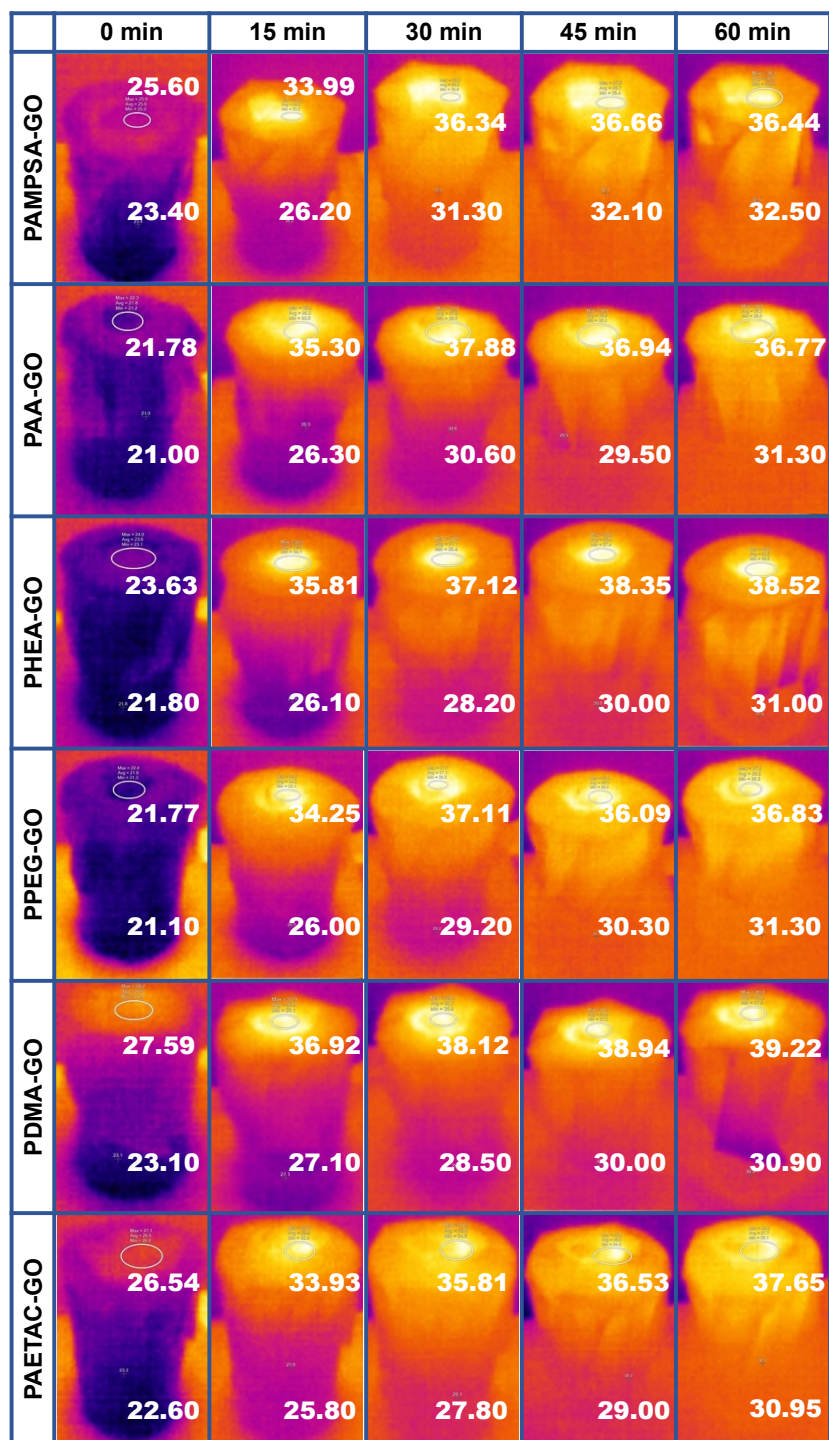


Figure S4. Thermal figures of PAMPSA-GO, PAA-GO, PHEA-GO, PPEG-GO, PDMA-GO and PAETAC-GO at the 0 min, 15 mins, 30 mins, 45 mins and 60 mins during the SVG testing.

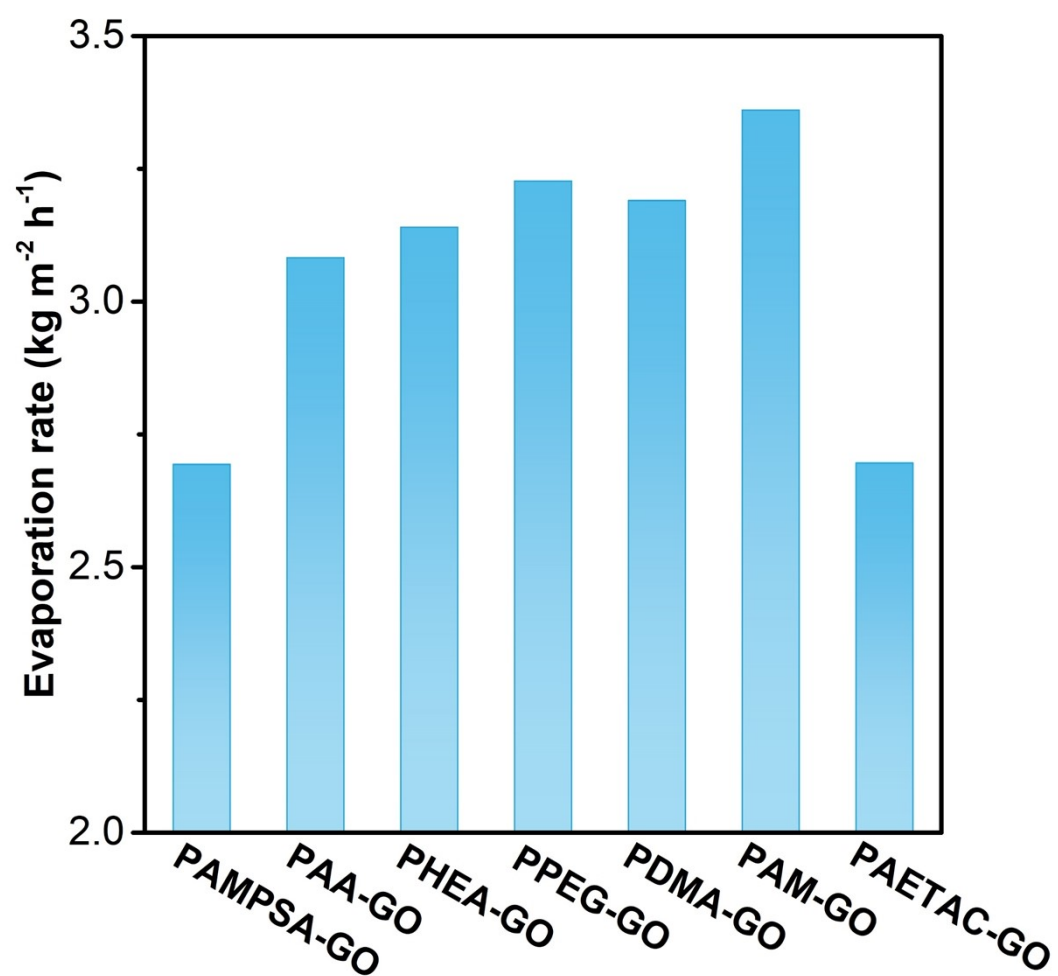


Figure S5. Evaporation rates of the hydrogels in seawater.

Table S2 The mass of the monomer and crosslinker used for the synthesis of the corresponding hydrogel.

Sample name	Mass of the monomer (mg)	Mass of the cross-linker (mg)
PAMPSA-GO hydrogel	277.11	22.89
PAA-GO hydrogel	242.43	57.57
PHEA-GO hydrogel	261.48	38.49
PPEG-GO hydrogel	300.00	0.00
PDMA-GO hydrogel	258.36	44.22
PAM-GO hydrogel	241.80	58.20
PAETAC-GO hydrogel	344.40	24.49