Supporting information

Imine-linked micron-network polymers with high polyethylene glycol uptake for shaped-stabilized phase change materials

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Table S1. The macroscopic characteristics of network polymers obtained from mercury porosimetry.

	Specific Surface Area(m^2/g)	Specific Pore Volume (m^3/g)	Porosity (%)
NP-A	17.8	3.27	79.7
NP-B	3.2	8.69	89.6

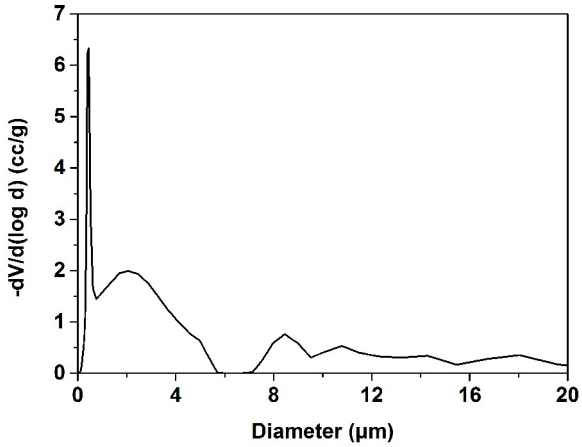

Fig S1. Pore size distribution curve of NP-A tested by mercury porosimetry.

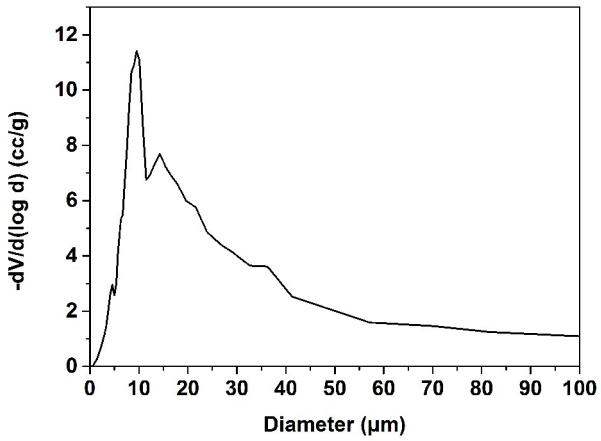

Fig S2. Pore size distribution curve of NP-B tested by mercury porosimetry.

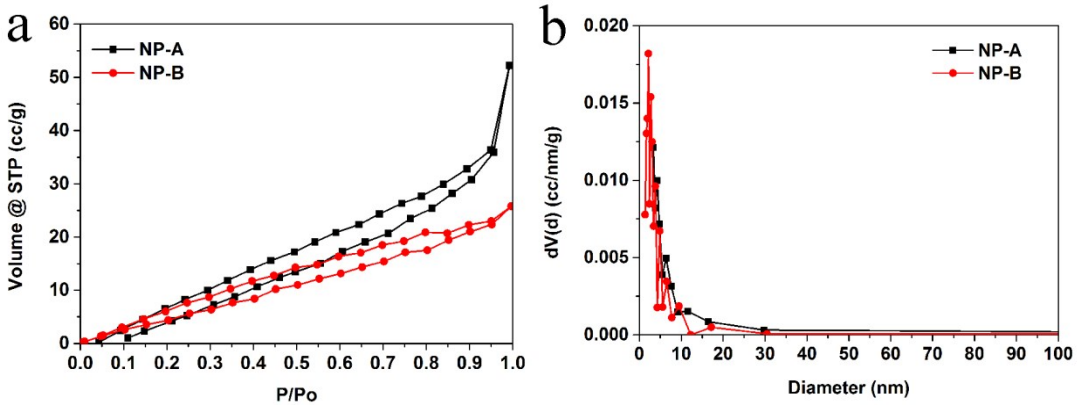

Fig S3. (a) Nitrogen sorption/desorption isotherms and (b) pore size distributions of

the two network polymers**.**

Table S2. BET and pore volume tests of the network polymers obtained from nitrogen sorption/desorption analysis.

Samples	BET (cm^2/g)	Pore volume (cm^3/g)
NP-A	46.3	0.081
NP-B	64.4	0.056

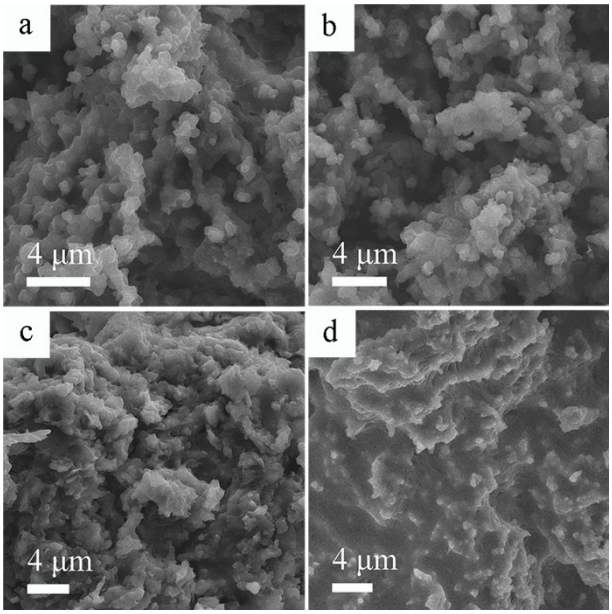

Fig S4. SEM images of PEG@NP-B with different mass fraction: (a) 50 wt%, (b) 60 wt%, (c) 70 wt% and (d) 80 wt%.

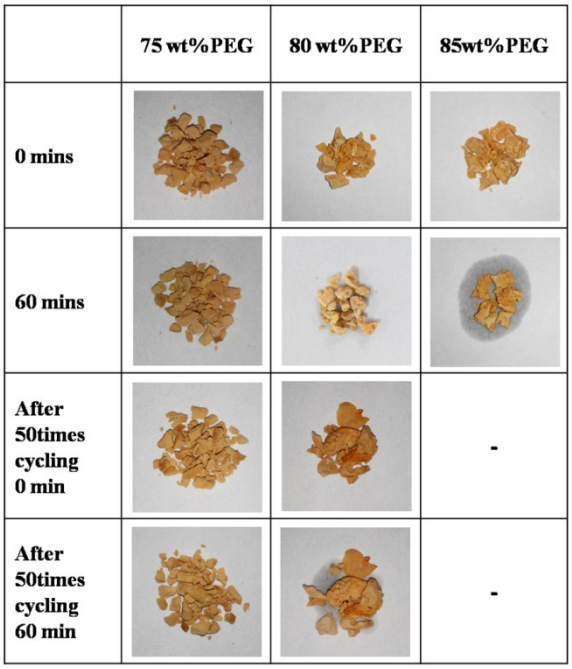

Fig S5. The shape-stable effect photos of PEG-6000@NP-B composite PCMs.

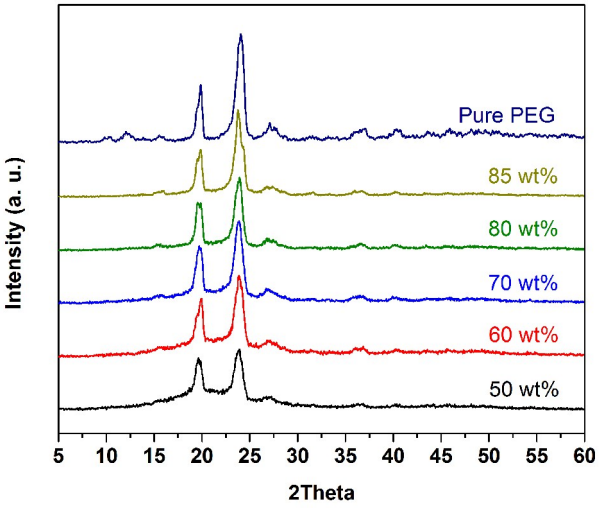

Fig S6. XRD patterns of PEG-6000@NP-B PCMs with various PEG mass fractions.

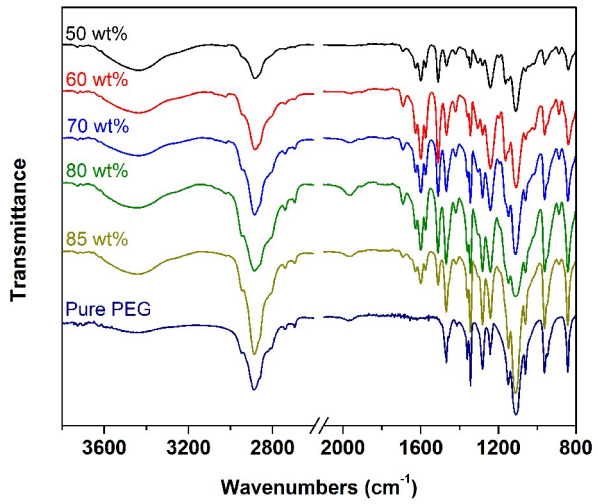

Fig S7. FT-IR spectrums of PEG-6000@NP-B PCMs with various PEG mass fractions.

Table S3. Phase change enthalpies of PEGs, PEG-6000@NP-A PCMs composites with various PEG mass fractions.

Samples	T_m (°C)	T_c (°C)	ΔH_m (J/g)	ΔH_c (J/g)
Pure PEG	64.9	33.7	198.7	182
50 wt% PEG@NP-A	59.2	35.6	55.6	52
60 wt% PEG@NP-A	60.4	34.1	106.8	99.5
70 wt% PEG@NP-A	61.3	34.6	135.9	126.5
80 wt% PEG@NP-A	61.3	33.6	157.9	146.3
85 wt% PEG@NP-A	61.3	33.8	164.9	152

Table S4. Phase change enthalpies of the 85 wt%PEG@NP-A composite PCMand its50 times cycling sample.

Samples	T_m (°C)	T_c (°C)	ΔH_m (J/g)	ΔH_c (J/g)
85 wt% PEG@NP-A	61.3	33.8	164.9	152.0
50 times cycling	61.9	31	146.2	129.5

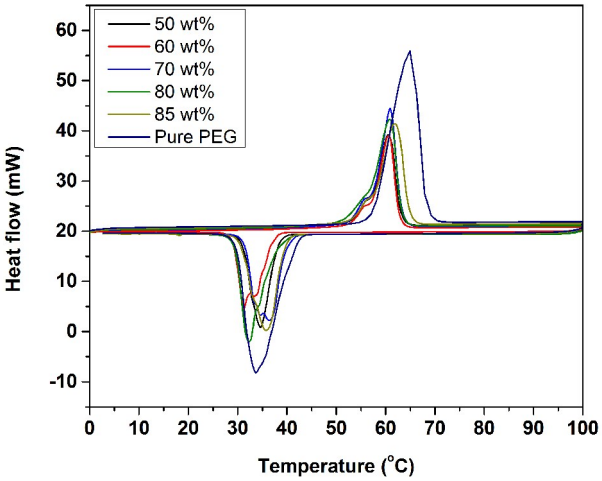

Fig S8. The DSC curves of PEG-6000@NP-B PCMs composites with various PEG mass fractions.

Table S5. Phase change enthalpies of PEGs, PEG-6000@NP-B PCMs composites with various PEG mass fractions.

Samples	T_m (°C)	T_c (°C)	ΔH_m (J/g)	ΔH_c (J/g)
Pure PEG	64.9	33.7	198.7	182
50 wt% PEG@NP-B	60.5	34.7	103.4	97.2
60 wt% PEG@NP-B	60.6	31.3	122.8	111.3
70 wt% PEG@NP-B	60.9	36.5	146	133.6
80 wt% PEG@NP-B	60.9	32.4	149.2	135.1
85 wt% PEG@NP-B	61.9	35.7	155.5	143.8