Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting Information

A novel shape-stabilization strategy for phase change thermal energy storage

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Fig. S1 (a) EDS spectra of HCPs-PCM/II; (b) EDS spectra of HCPs-PCM/III.

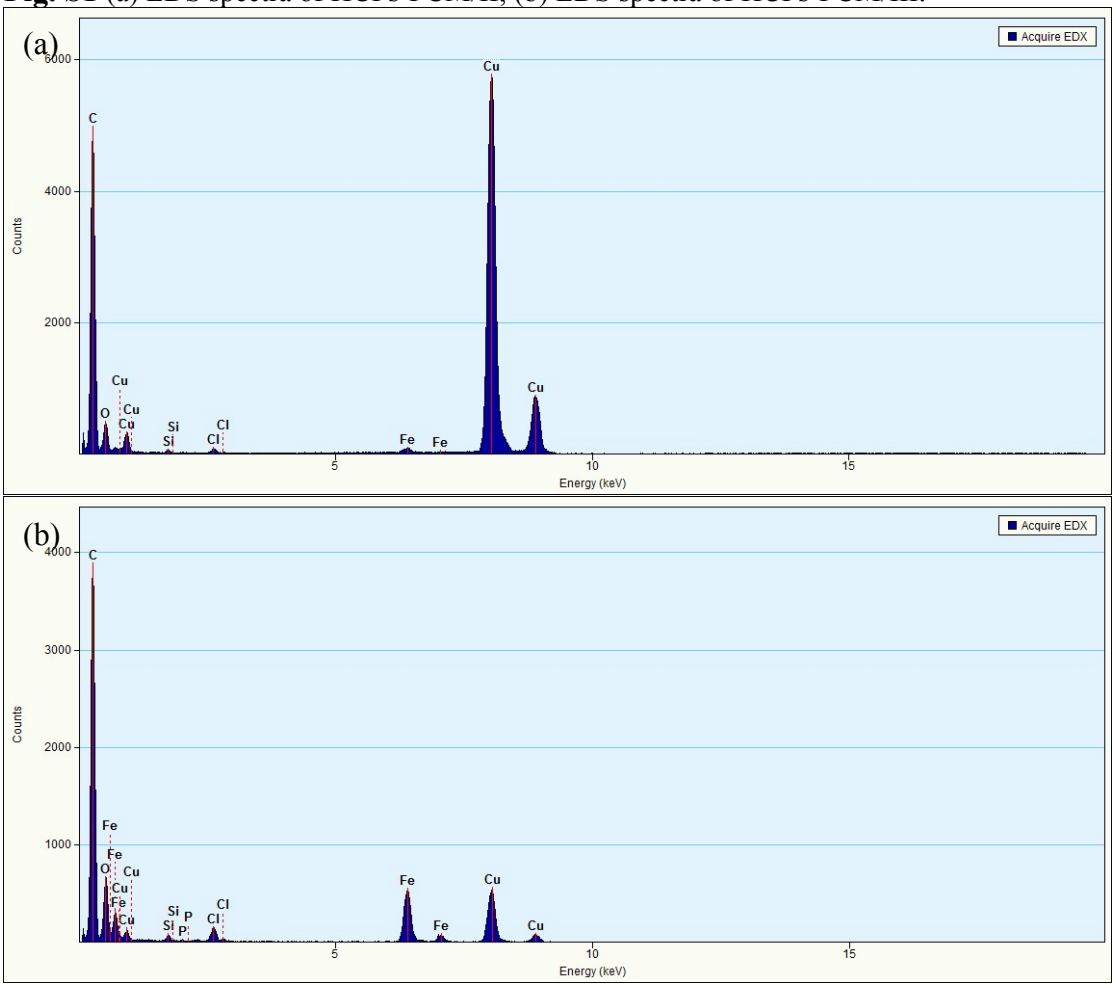
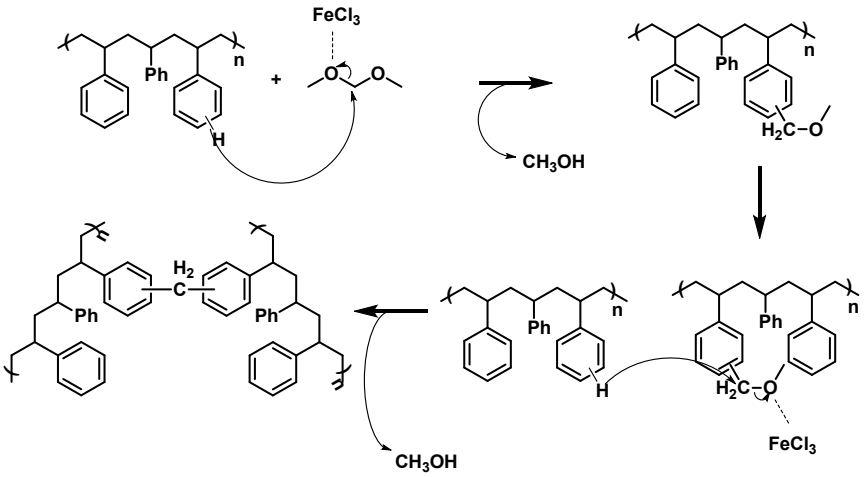


Fig. S2 Magnetic property test for HCPs-PCM/II(1.5) and HCPs-PCM/III(1.5).

Fig. S3 Proposed mechanism for the formation of HCPs (a), and Fe_3O_4 (b);

(a)



(b)

$$6FeCl_3 + CH_3OH + 18NH_4OH \longrightarrow 2Fe_3O_4 + CH_2O + 18NH_4Cl + 10H_2O$$

Fig. S4 XPS survey spectra of (a) HCPs-PCM/II and (b) HCPs-PCM/III.

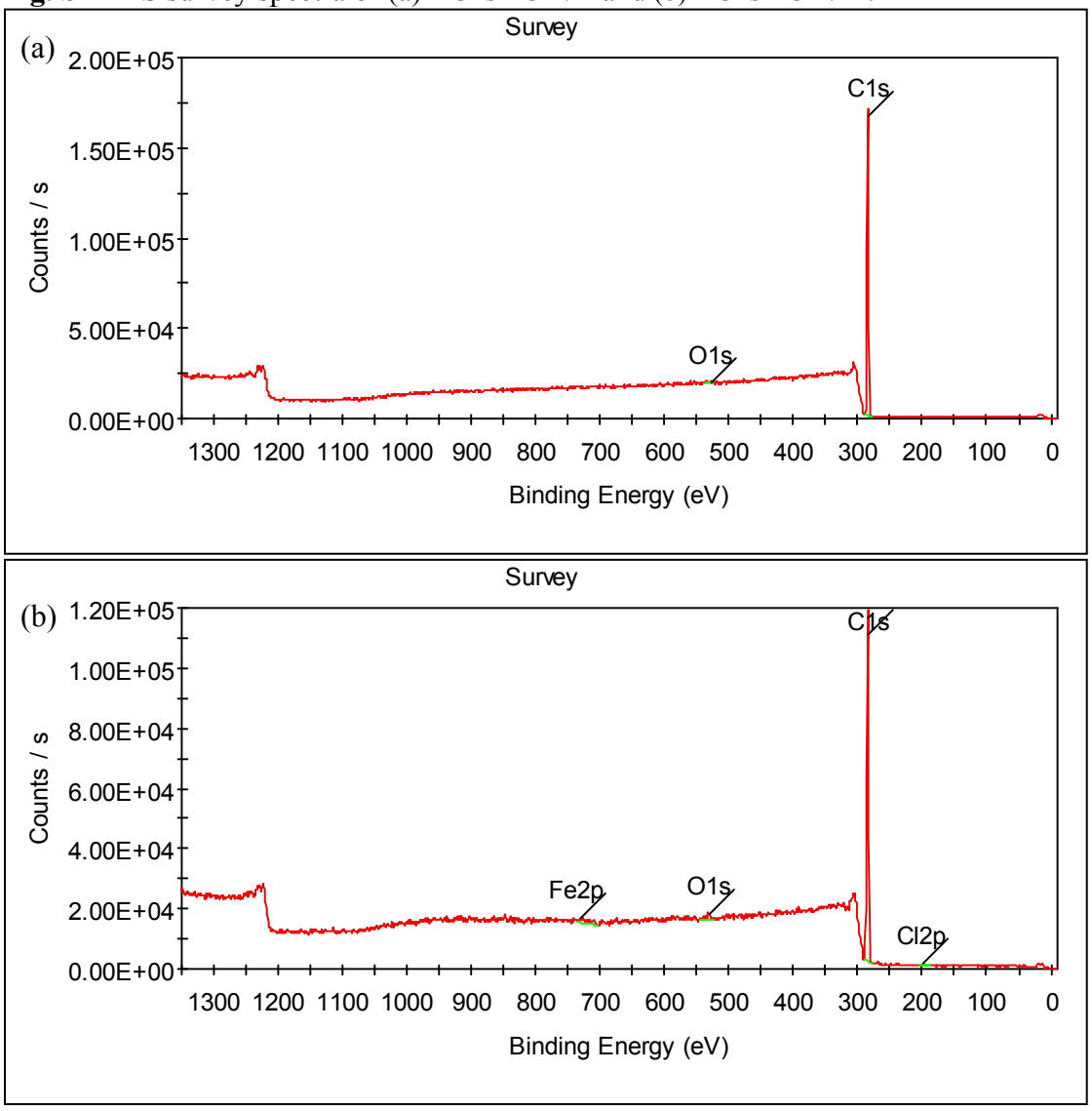


Fig. S5 SEM image of (a) HCP, (b) paraffin, (c) HCPs-PCM/III (1.0), (d) HCPs-PCM/III (1.5), (e) HCPs-PCM/III (2.0), (f) HCPs-PCM/III (2.5), (g) HCPs-PCM/III (3.0).

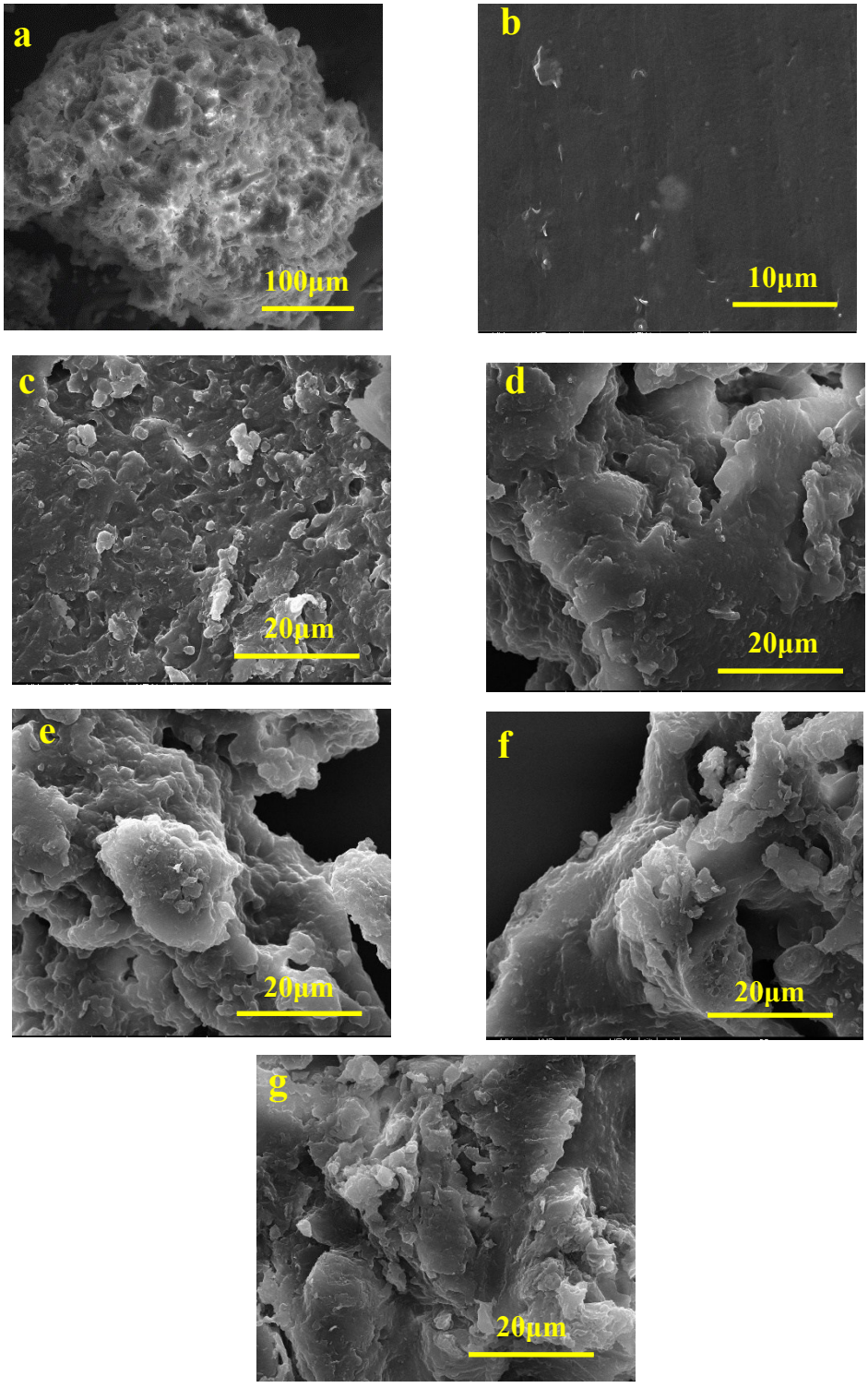


Fig. S6 The mass loss of the HCPs-PCM/III (n) samples after having been heated at 80 °C for 5 hours.

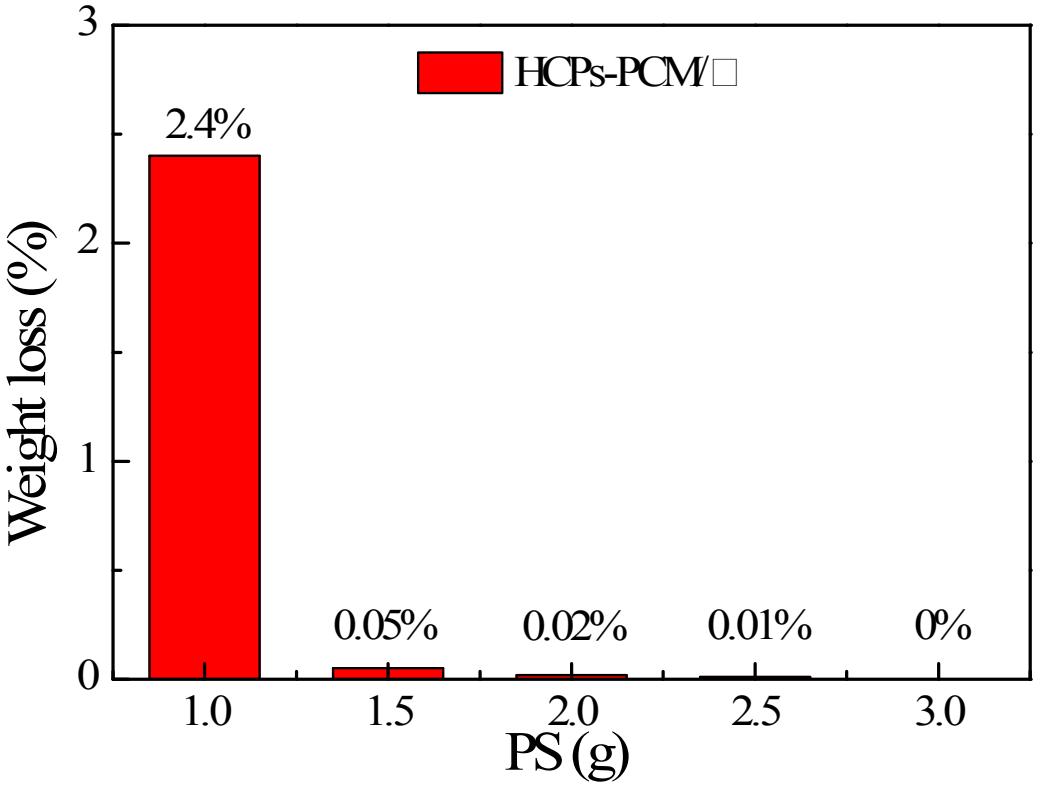


Fig. S7 SEM images of (a) 0.4 g GR , (b) 0.4 g SiC, (c) 0.4 g Fe_3O_4, (d) 0.4 g EG incorporated HCPs-PCM/III composites;

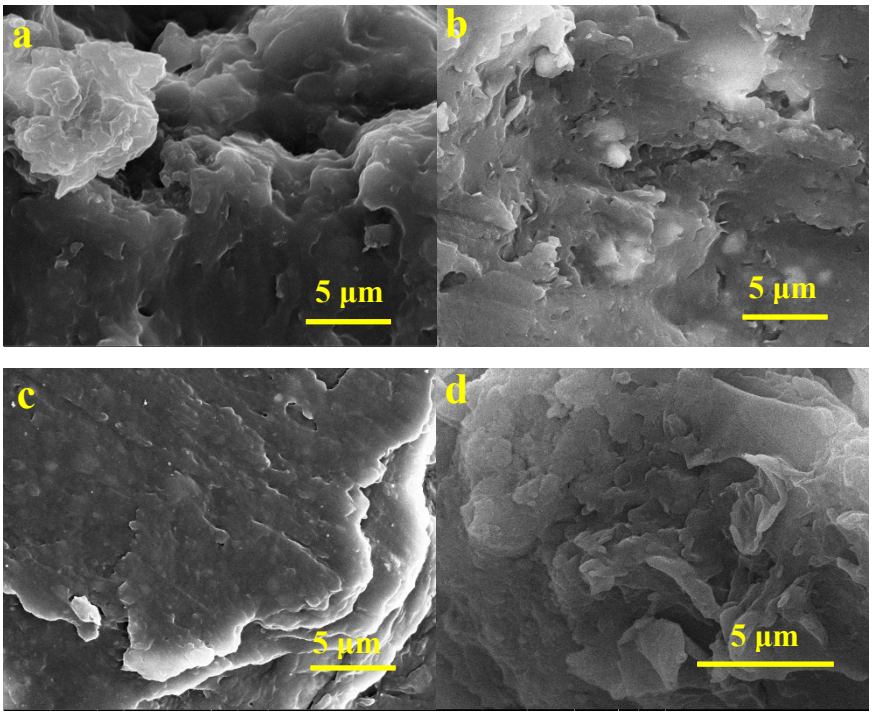


Fig. S8 DSC curves of HCPs-PCM/III (1.5) composites with varies nanofillers.(a) HCPs-PCM/III (1.5)-GR (0.1); (b) HCPs-PCM/III (1.5)-SiC (0.1); (c) HCPs-PCM/III (1.5)-Fe_3O_4(0.1); (d) HCPs-PCM/III (1.5)-EG (0.1); (e) HCPs-PCM/III (1.5)-EG (0.2); (f) HCPs-PCM/III (1.5)-EG (0.3); (g) HCPs-PCM/III (1.5)-EG (0.4).

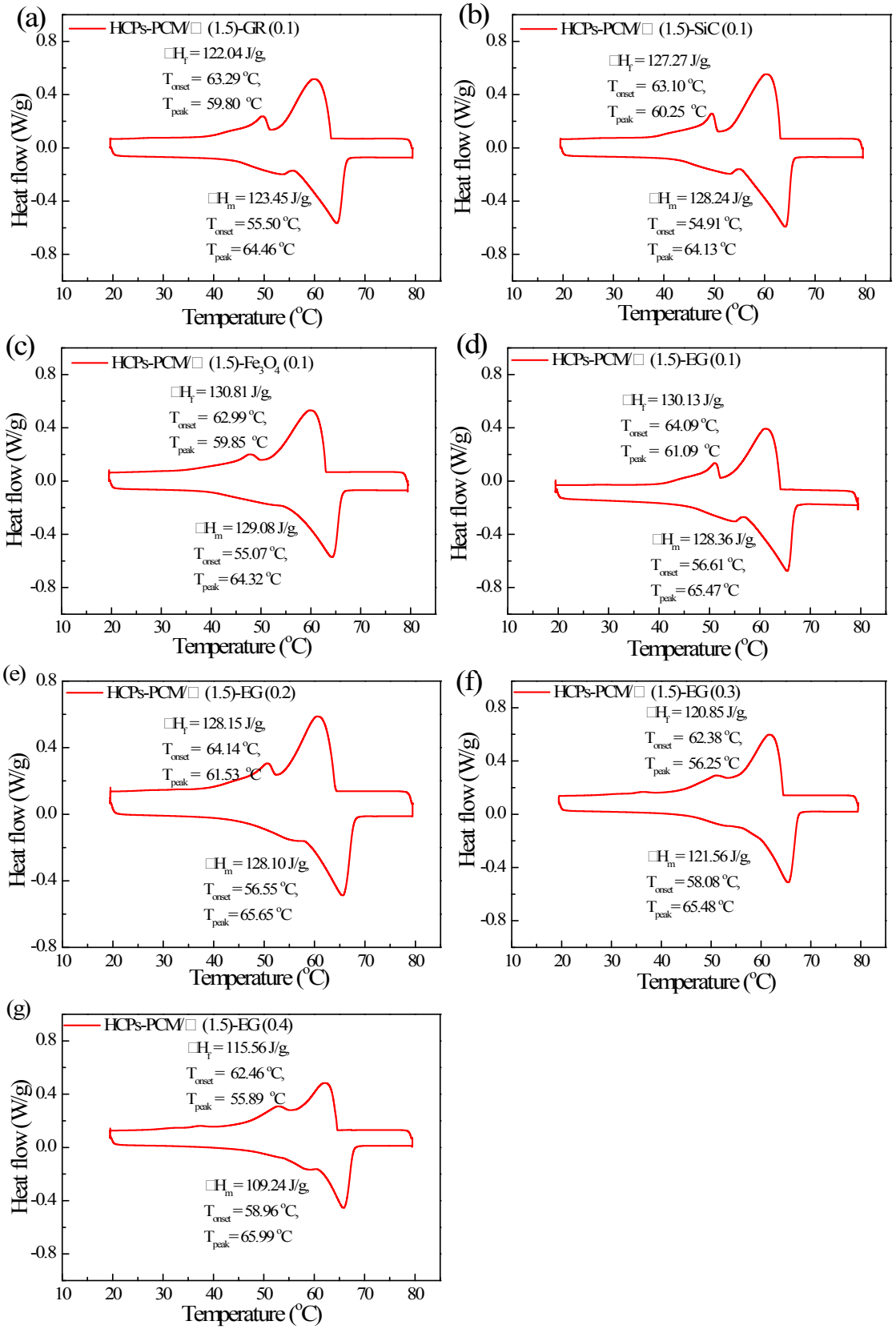


Table S1 BET value of HCPs.

Samples	BET surface area/(m^2/g)	Pore volume /(cm^3/g)	Average pore diameter /(nm)
HCPs1	364	0.26	2.89
HCPs2	361	0.26	2.91

HCPs1: prepared in the absence of paraffin; HCPs2: prepared in the presence of paraffin.