Supporting Information

Effect of Aminopropylisobutyl Polyhedral Oligomeric Silsesquioxane Functionalized Graphene on the Thermal Conductivity and Electrical Insulation Properties of Epoxy Composites

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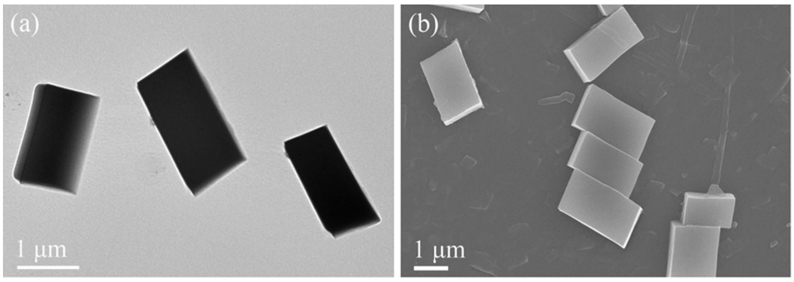

Figure S1 TEM and SEM of ApPOSS

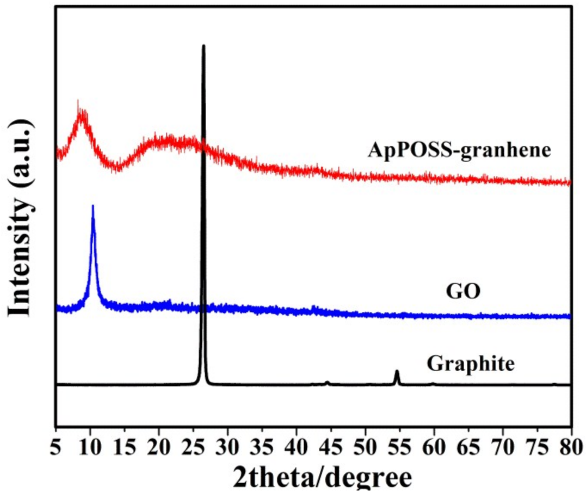

Figure S2 X-ray diffraction patterns of graphite, GO and ApPOSS-graphene

The XRD patterns of graphite, GO, and ApPOSS-graphene are shown in Figure S2. As previously reported, graphite and GO show typical characteristic diffraction angles (2θ= 26.5° and 2θ = 10°), respectively. Upon functionalization with ApPOSS, the XRD peak of GO downshifted to 2θ =8.9°, which were attributed to that the covalently bonded ApPOSS moieties increased the interlayer space between graphene sheets in the ApPOSS-graphene hybrid. The newly amorphous bands at 2θ=15-35° in the XRD profile of the ApPOSS-graphene suggested a disordered structure with low crystallinity.

Table S1 Thermal stability properties of EP, GO 0.50/EP, ApPOSS 0.50/EP and ApPOSS-granphene 0.50/EP calculated from TGA curves.

Material sample	Content (wt %)	T_5 (°C)	Char yield (%) at 700 °C
EP	0	343.17	5.33
GO	0.50	337.65	5.99
ApPOSS	0.50	340.11	5.47
ApPOSS-graphene	0.50	347.62	7.82