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

Supporting Information

Decomposable Double-walled hybrid nanorods: formation mechanism and their effect on flame retardancy of the epoxy resin composite

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1. Characterization of nanorods: ^{27}Al NMR, TGA and XRD

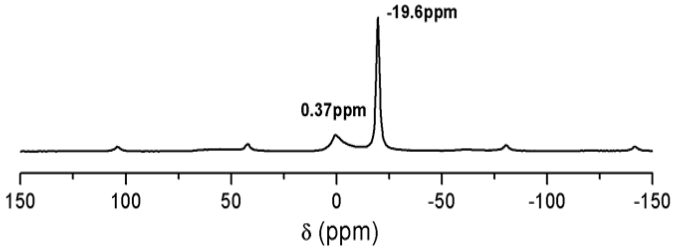

Figure S1. ^{24}Al NMR of ASPH-NR.

2. Contrast reactions varying conditions

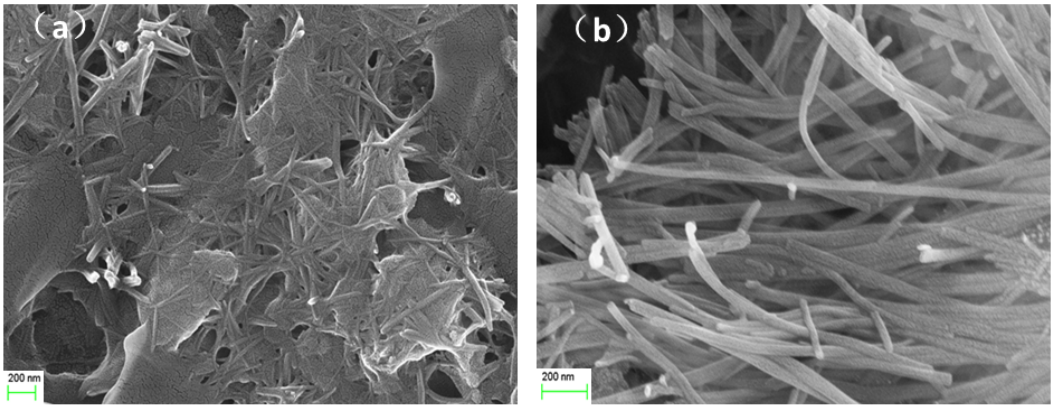

Figure S2. SEM images of ASPH-NRs produced from different reaction conditions. a) 100 °C under ambient pressure for 12 h; b) 160 °C under hydrothermal conditions for 12 h.

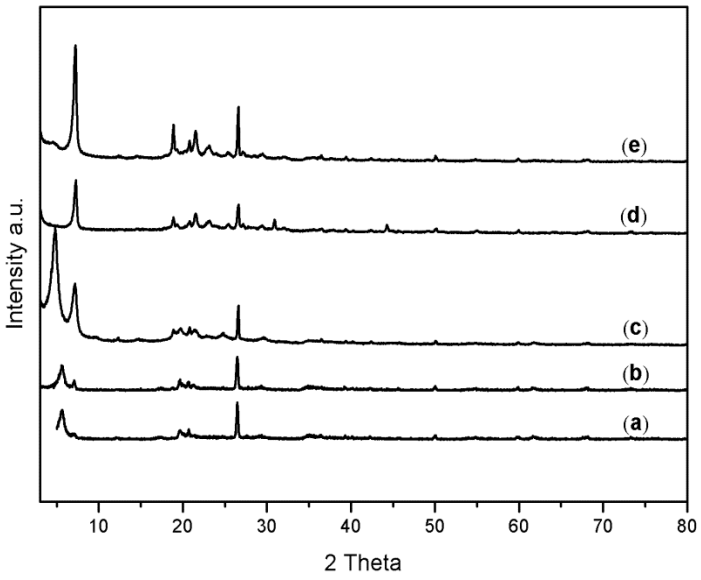

Figure S3. XRD patterns of ASPH-NRs produced from different reaction temperature. a) 40 °C; b) 60 °C; c) 100 °C; d) 120 °C; e) 160 °C.

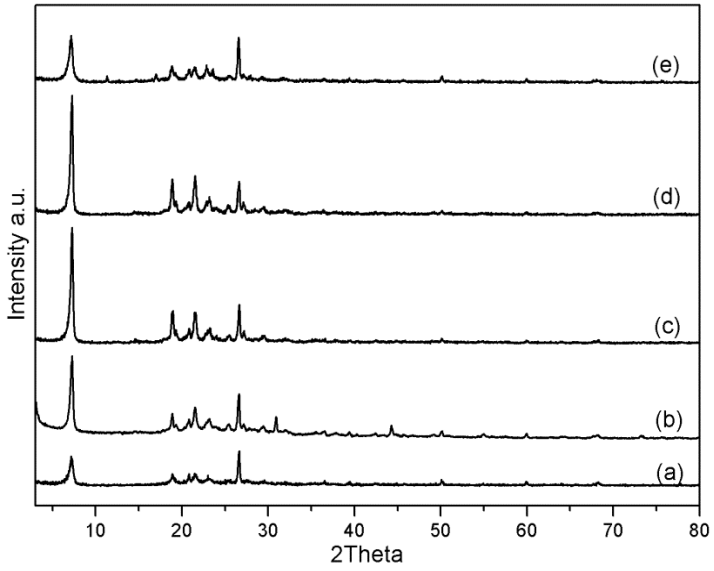

Figure S4. XRD patterns of ASPH-NRs produced from different OMMT/DPPA weight ratio. a) OMMT: DPPA=1:1; b) OMMT: DPPA=1:2; c) OMMT: DPPA=1:3; d) OMMT: DPPA=1:4; e) OMMT: DPPA=1:5.

3. Contrast reactions varying phosphonic acids

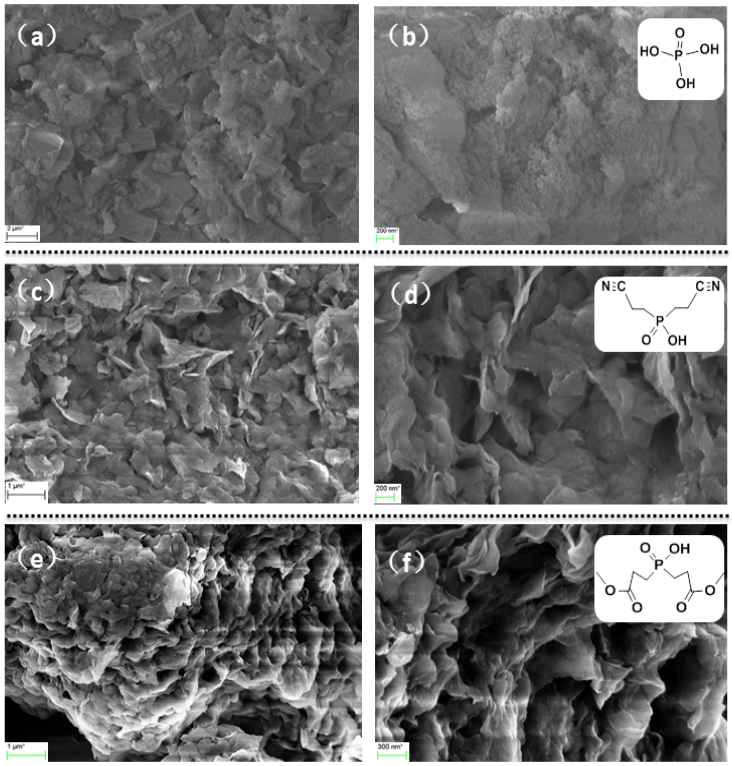

Figure S5. SEM images of the products obtained from the reaction of OMMT with phosphoric acid (a-b); bis(2-cyanoethyl)phosphinic acid (c-d); bis(3-methoxy-3-oxopropyl)phosphinic acid (e-f)

4. DMA results of Epoxy/ASPH-NRs nanocomposites

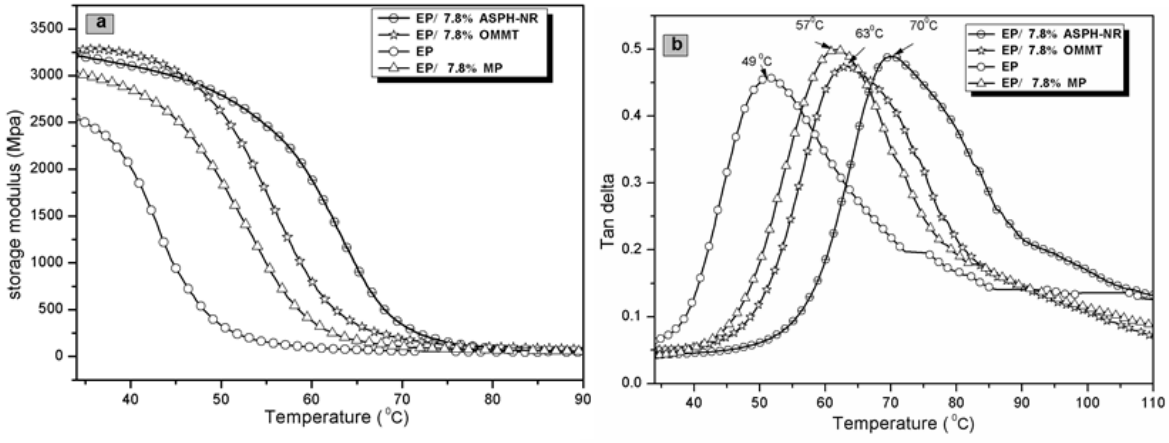

Figure S6. DMA results of EP and EP composites. (a) Storage modulus-temperature curves with temperature; (b) Tan δ-temperature curves.