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Supporting Information for

Synthesis and Acidic Catalytic Properties of Ordered Mesoporous Alumina-Tungstophosphoric acid Composites

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Thermogravimetric analysis

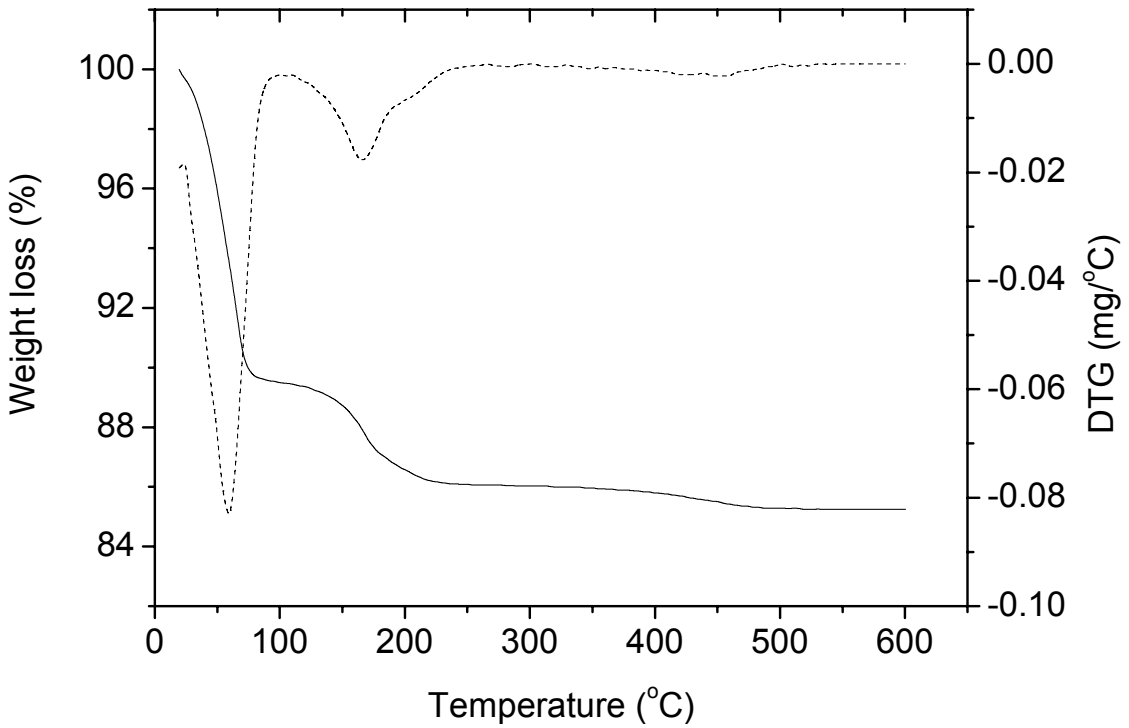

Fig. S1 TGA profile of $H_3PW_{12}O_{40}{\cdot}xH_2O$ sample. The weight losses 13.5% and 0.8 % in the temperature ranges 50-220 ^oC and 315-490 ^oC, respectively, are indicated from the differential thermogravimetric (DTG) curve (dashed line).

The TGA profile of $H_3PW_{12}O_{40}{\cdot}xH_2O$ shows a weight loss below 220 ^oC, which is occurring via at least two-step process as indicated from the curves slope, attribute to the removal of crystallization water (~24.5H_2O). The gradual weight loss observed between 315 and 490 ^oC is attributed to the removal of constitutional water, i.e. the H_3O^+ bound to the external oxygens of heteropoly acid (~1.5H_2O).[1]

Wide-angle X-ray diffraction

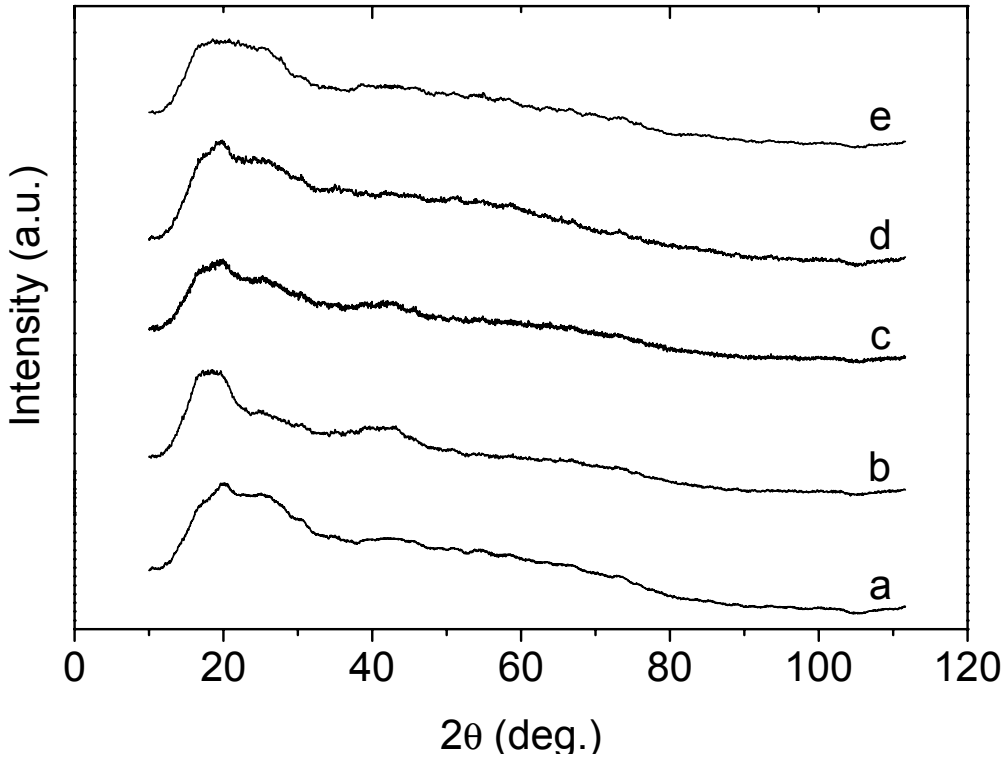

Fig. S2 Wide-angle XRD patterns of mesoporous (a) alumina (*meso*-Al_2O_3) and (b) Al-HPW(5), (c) Al-HPW(22), (d) Al-HPW(36) and (e) Al-HPW(53) composites.

References

(1) Fournier, M.; Feumi-Jantou, C.; Rabia, C.; Herve, G.; Launay, S. *J. Mater. Chem*. **1992**, *2*, 971