Electronic Supplementary Material (ESI) for Soft Matter

Effect of thermal treatment and moisture content on the charge of silica particles in non-polar media

Supplementary Information

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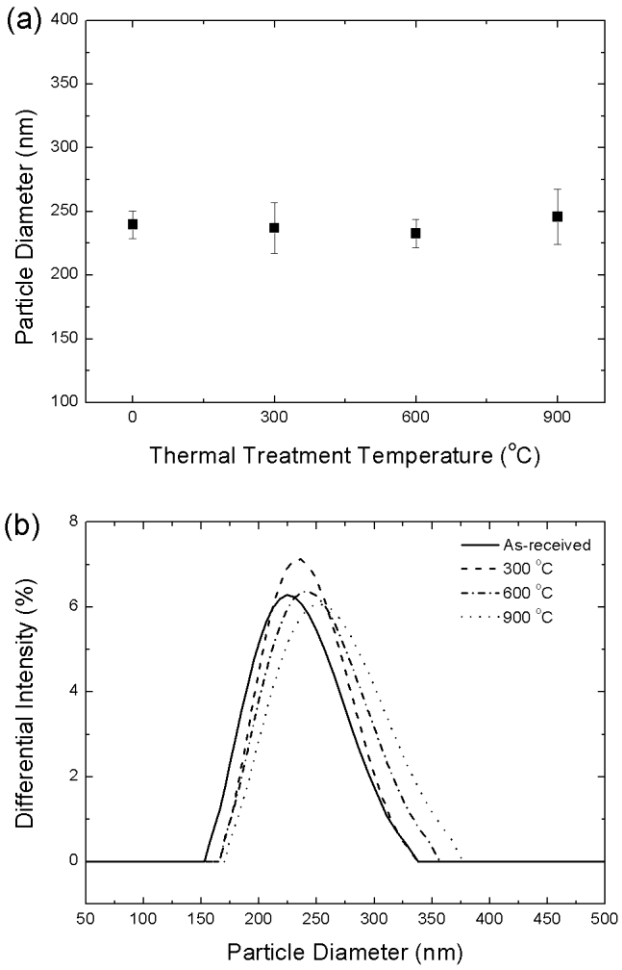

Fig. S1. Dynamic light scattering (DLS) (a) average particle diameter and (b) size distribution of silica particles as-received and thermally treated at different temperatures. Error bars represent standard deviation of six measurements.

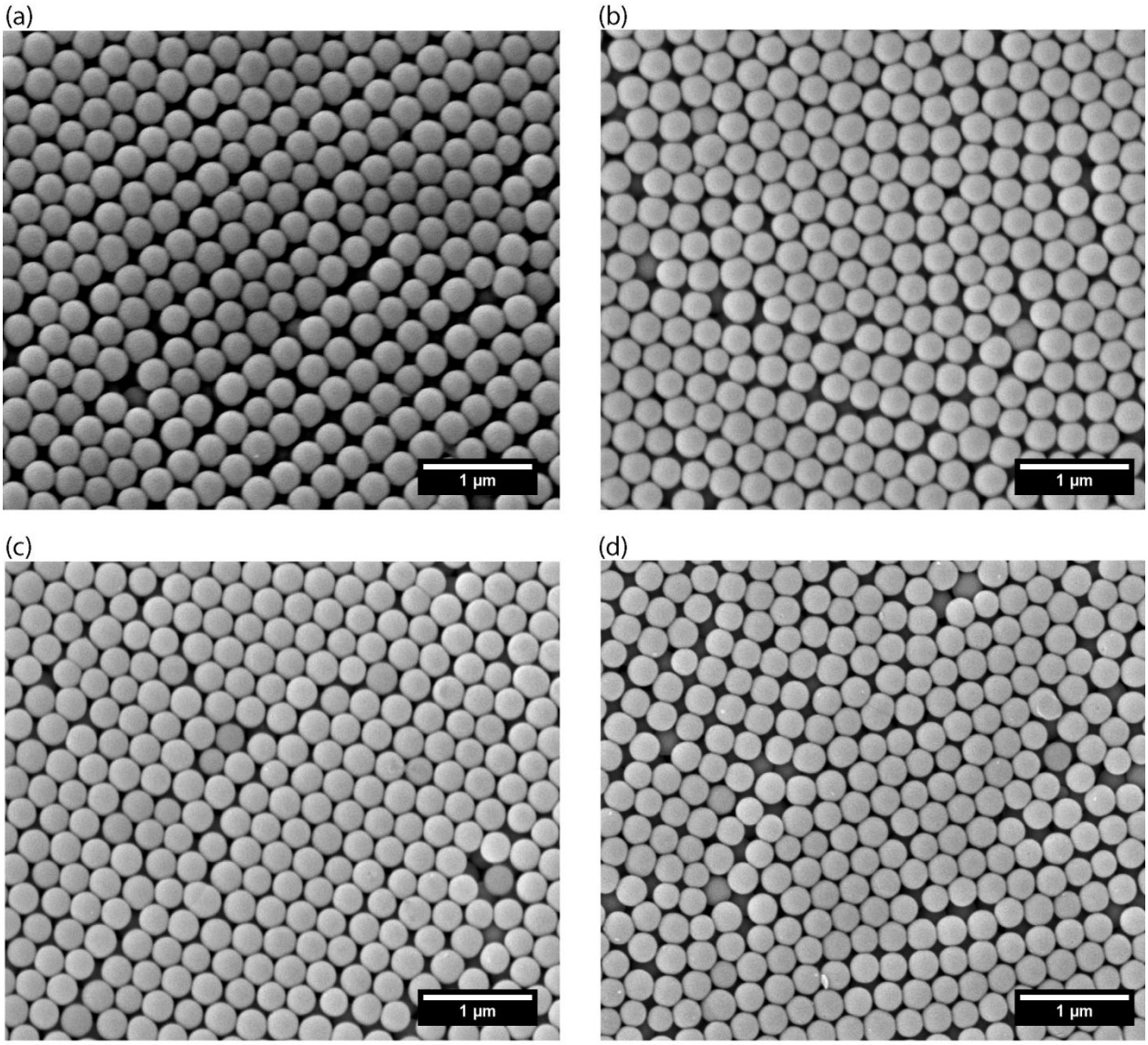

Fig. S2. Scanning electron microscopy (SEM) images of silica particles (a) as-received and thermally treated at (b) 300 ^{o}C, (c) 600 ^{o}C and (d) 900 ^{o}C. Silica particles do not fuse for all thermal treatment temperatures.

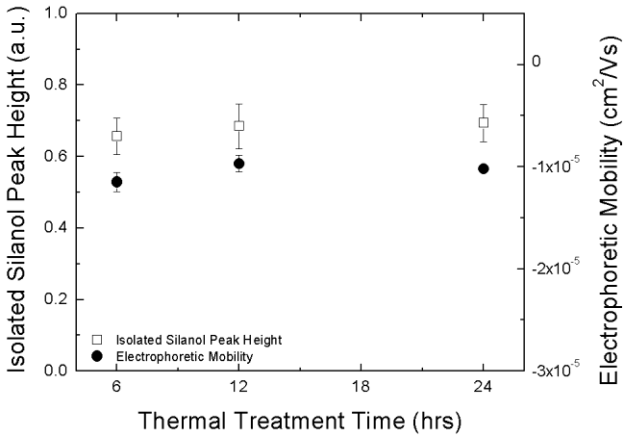

Fig. S3. Change in normalized isolated silanol group peak height (left axis) and electrophoretic mobility of particles in 10 mM AOT/toluene stored at low relative humidity (right axis) with particle thermal treatment (1000 ^{o}C) time.

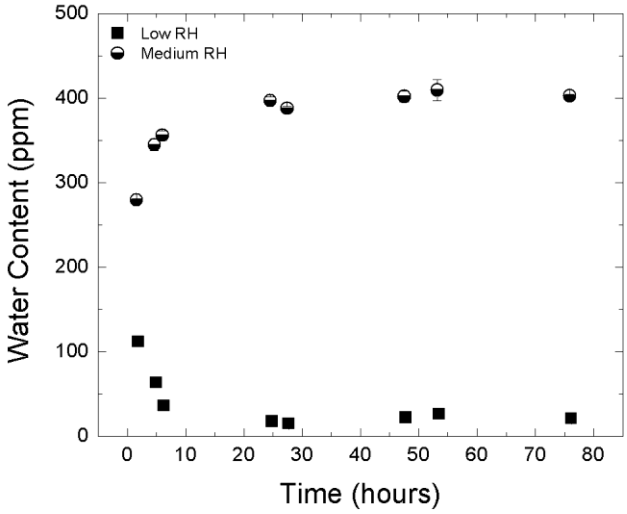

Fig. S4. Temporal change in water content of 10 mM AOT/toluene solution stored at low (11%) and medium (47%) relative humidity.

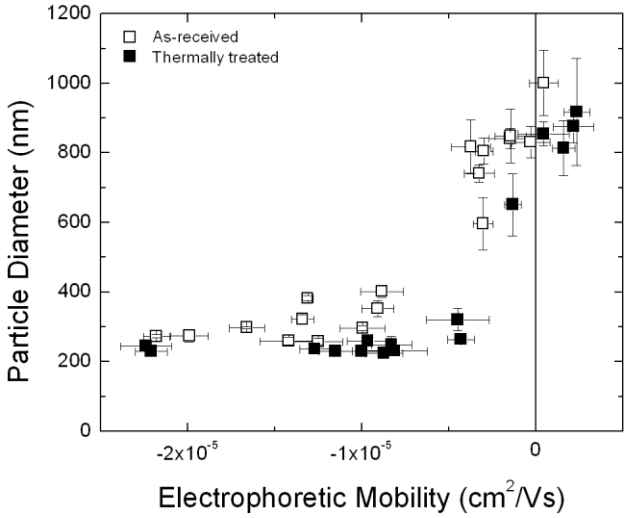

Fig. S5. Change in silica particle size with electrophoretic mobility for as-received and thermally treated samples.

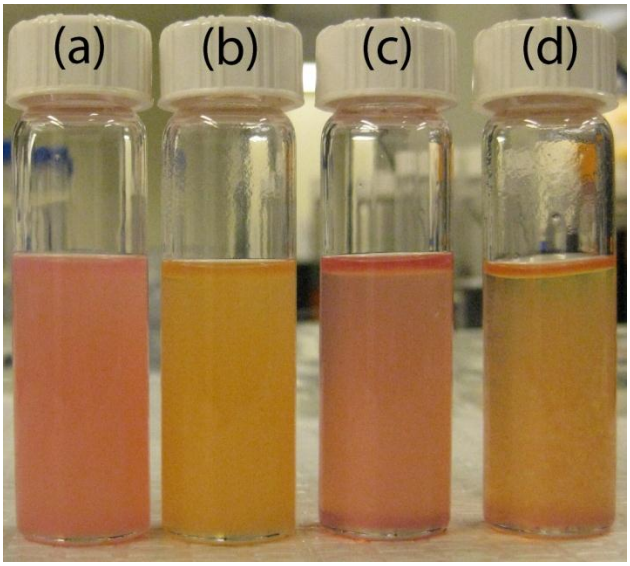

Fig. S6. Methyl red dye indicator test for as-received silica particles at (a) low and (b) high relative humidity, and for 1000 ^{o}C thermally treated silica particles at (c) low and (d) high relative humidity.

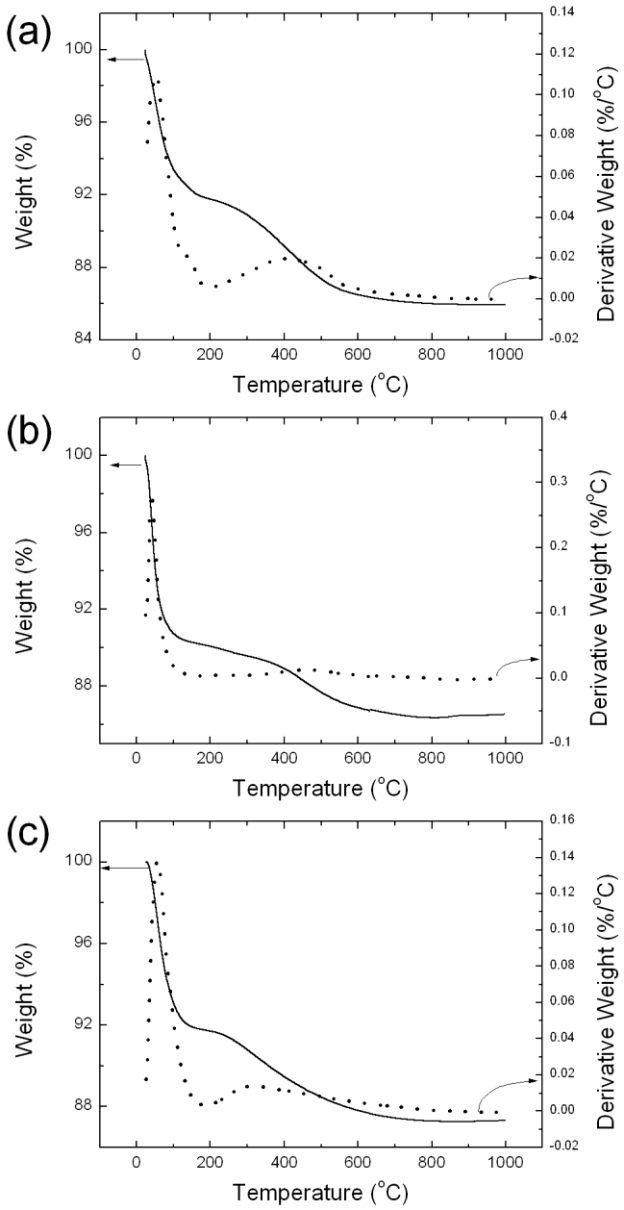

Fig. S7. Weight loss of (a) Silica-2, (b) Silica-3, and (c) Silica-4 particles as a function of temperature (solid line) as determined by thermogravimetric analysis (TGA). Dashed lines represent derivative of weight change with respect to temperature.