Supporting Information

Relationships between solution and solid-state properties of solution-cast low-\(k\) silica thin films

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Fig. S1. OM images of natural drying, drop-casting thin films produced from the solutions with (a) no surfactant, (b) TWEEN® 80, or (c) Triton™ X-100 as the surfactant.
Fig. S2. Solution (left) versus gel (right) state produced from silica casting solutions with TWEEN® 80 at a surfactant concentration of (a) 20 wt% (the same as used in this work) and (b) 32 wt% after aging for 22 hr at room temperature.
Fig. S3. (a) Detailed fitting of full SAXS profiles as shown in Fig. 5 for three casting solutions, (b) gathering of the fitted parameters, and (c) the expression utilized for the theoretical fit (G. Beaucage, in Polymer Science: A Comprehensive Reference, ed. M. Möller, Elsevier, Amsterdam, 2012, DOI: http://dx.doi.org/10.1016/B978-0-444-53349-4.00032-7, pp. 399-409).
Fig. S4. XRD patterns of powder samples derived from colloidal silica solutions without surfactant and with TWEEN® 80 or Triton™ X-100 as the surfactant, respectively.
Fig. S5. GIXRD patterns of thin films cast from the solutions without surfactant and with TWEEN® 80 or Triton™ X-100 as the surfactant, respectively.