

Electronically Supplementary Information for:

Sol-gel synthesis of monolithic silica gels and glasses from phase-separating tetraethoxysilane-water binary system

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Figure S1-Supporting information

Raman spectra of solutions 1 of $x=1.8, 1.9, 2.0$ and 2.2 taken after stirring for 1 hour since the first mixing, just before the second mixing. Raman spectrum of tetraethoxysilane (TEOS) is also shown. Raman bands at 657cm^{-1} is due to Si-O-C bonds in TEOS. This band continuously shifts to higher energy side with an increase in the number of OH groups attached to the silicon atom.¹ From comparison to the results of tetramethoxysilane-based systems,¹ Raman band at 680cm^{-1} is attributed to Si-O-C bonds in $(\text{EtO})_3\text{SiOH}$. The intensities of 680cm^{-1} band and shoulder-like broadening at higher energy side due to Si-O-C bonds in $(\text{EtO})_{4-n}\text{Si}(\text{OH})_n$ ($n=2, 3$) decrease with an increase in x , most significantly between $x=1.9$ and 2.0 , indicating a considerable decomposition of ethoxy groups at this x range.

