**Supplementary Table 2.** Effects of changing the parameters of the sol-gel process.

|  |  |
| --- | --- |
| Parameter | Effect |
| Water /alkoxide ratio | Proportion of water ∝ freezing and hydrolysis time  Proportion of water ∝ pore size and mesoporosity  Proportion of water 1/ ∝ surface area |
| pH of the reaction | Acid → rapid hydrolysis, slow freezing, increased surface area  Basic → rapid hydrolysis, slow freezing, uniform particles  Neutral → slow hydrolysis, fast freezing, non-uniform particles |
| Nature of solvent | Protic: rapid hydrolysis, increased miscibility (hydrogen bridges)  Aprotic: slow hydrolysis, formation of -OH ions. |
| Concentration of solvent | Solvent molar ratio: alkoxide ∝ gelation time |
| Reaction temperature | Temperature ∝ Reaction rate  It can be a determining factor in the type of crystalline structure synthesized |

∝ = proportional