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A new rapid and economical one-step method for preparing SiO₂ aerogels using
supercritical extraction

Xiaodong Wu^{1,2,4}, Gaofeng Shao^{1,2,4}, Sijia Liu^{1,2,4}, Xiaodong Shen^{1,2,4,*}, Sheng Cui^{1,2,4*}, Xiangbao Chen³

(1 College of Materials Science and Engineering, Nanjing Tech University, Nanjing,
210009, China;

2 Jiangsu Collaborative Innovation Center for Advanced Inorganic Function
Composites, Nanjing Tech University, Nanjing, 210009, China;

3 Beijing Institute of Aeronautic Materials, Beijing, 100095, China;

4 Advanced Materials Institute of Nanjing Tech University in Suqian, Suqian, 223800,
China)

Abstract: Monolithic silica aerogels (SiO₂) are prepared using the tetraethylorthosilicate (TEOS) as precursor via a rapid supercritical extraction method (RSCE). The effect of heat treatment on the textural and physical characteristics of RSCE-samples are compared with those of the other two conventional supercritical extraction method, i.e. the alcohol supercritical extraction (ASCE) and CO₂ supercritical extraction (CSCE). This new RSCE method offers many distinct advantages. The precursor recipe employs TEOS, ethanol, water, diluted hydrochloric acid to catalyst hydrolysis, and ammonia to accelerate the condensation rate. One advantage is the relative simplicity of this method: liquid precursors are poured into

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