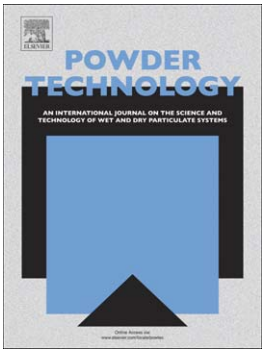

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A new rapid and economical one-step method for preparing SiO_2 aerogels using supercritical extraction

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Abstract: Monolithic silica aerogels (SiO_2) 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 CO_2 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