The effect of drying techniques on the physico-chemical properties of precipitated silica

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The conventional drying method used for the preparation of mesoporous precipitated silica with low surface area (>300 m2/g) are often characterized by high production cost and time consuming process. Therefore, the main goal of this study was to develop a cost-effective and fast drying process for the production of mesoporous precipitated silica using sodium silicate and microwave drying of the wet precipitated gel slurry. The precipitated silica wet-gel slurry was prepared from aqueous sodium silicate solution by drop-wise addition of sulfuric acid. The effects of different drying techniques (microwave drying, spray drying, and oven drying) on the physicochemical properties of the silica powder were investigated.