

## Morphology Control of Mesoporous Silica SBA-15

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Mesoporous SBA-15 silica which has controllable large mesopore sizes (5-15 nm) with narrow size distribution, modifiable high surface areas (700-900 m<sup>2</sup>/g), hydrothermally stable frameworks (3-6 nm), and tuneable micro-(or secondary meso-) pores, are one of the most frequently investigated materials with increasing interests for various practical applications such as separation, wave guide, host/guest chemistry, water purification, template for nano-replication, and catalyst supports. Besides the basic advantages of SBA-15 based on the structural properties, control of overall morphology is an additional prerequisite for improving performances in the above applications. we demonstrate a general shape-selective synthesis methodology of SBA-15 materials that uses fundamental synthesis conditions, i.e., initial temperature, average micelle packing parameter (g value) and use of a specific additive (KCl). The control of fundamental synthesis conditions allowed morphologies of SBA-15 over a wide range of size. Furthermore, the insights into the morphological formation of SBA-15 provided by the relationships between the morphogenesis and the fundamental synthesis conditions may also be useful for the morphological design of various meso structured materials.