

Synthesis and Characterization of High-surface-area ZrO_2 by modified Sol-Gel method using ionic liquids

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Zirconia (ZrO_2) is a well-known inorganic oxide material used for variety of applications. Especially, tetragonal ZrO_2 is used as a catalyst and catalyst support for various gas phase reactions. So, an important aspect in the preparation of ZrO_2 catalyst is the development of ZrO_2 particles with abundant tetragonal phase even after they suffer a heat treatment. And essential properties for high catalytic activity such as high surface area, controlled porosity and tailor-designed pore size distribution are also required.

In this study, zirconia support has been synthesized by modified sol-gel method using various ionic liquids as a template. Moreover, the effect of synthesis temperature on ZrO_2 nanocrystallites size and their phase evolution behavior has been studied.