Synthesis of nanostructured alumina granules by Sol-Gel/Oil-drop method

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γ-Alumina is one of the most common crystalline materials used as adsorbents and catalysts or as their supports. Various methods could be used to prepare alumina granules such as tumble growth, tabletting and extrusion. Recently, sol-gel/oil-drop method was reported to prepare mesoporous spherical alumina granules with 1-3mm diameter, which combined the Yoldas sol-gel process and an oil-drop granulation process. Although the product granules offer very attractive physical and chemical properties for use as adsorbents and catalysts, most of research has been focused on the improvement of mechanical properties of the granules. For practical applications as nanostructured materials, however, the control of pore structure is also important. In this research, the nano structured alumina granules were prepared by the modified sol-gel/oil-drop method, and the pore structures of the granules were systematically investigated. Also, polystyrene beads were used to control the pore structures of the granules.