Synthesis of thermally-stable porous Si doped Al_2O_3 particles using aerosol spray method

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Porous materials are used for various fields such as separation processes and catalysis. However the surface area of porous materials is decreased by the sintering and phase transformation at high temperature. Porous Si doped Al_2O_3 particles with the thermal stability were prepared by the aerosol spray method. Compared with Al_2O_3, the results of thermogravimetric analysis (TGA) and X-ray diffraction (XRD) showed that the phase-transformation temperature of Si doped Al2O3 was shifted to the high temperature. The morphologies of Si doped Al2O3 calcinated at 550℃ and 1200 ℃ were observed by transmission electron microscopy (TEM) and scanning electron microscopy (SEM).