

## Synthesis of Pd supported on Highly Ordered Mesoporous CeO<sub>2</sub> for Low temperature CO Oxidation

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Catalytic oxidation of CO has been studied extensively because of its great importance for both practical applications and fundamental research of catalysis sciences. In this study, highly ordered mesoporous cerium dioxide (meso-CeO<sub>2</sub>) was successfully synthesized using a facile solvent-free infiltration method from a mesoporous silica template, KIT-6. The physicochemical properties of meso-CeO<sub>2</sub> material and Pd-supported on meso-CeO<sub>2</sub> (Pd/meso-CeO<sub>2</sub>) were characterized by electron microscopy, X-ray diffraction, N<sub>2</sub> adsorption-desorption, CO-temperature programmed desorption, H<sub>2</sub>-temperature programmed reduction and O<sub>2</sub>-temperature programmed oxidation. The catalytic activity of the Pd/meso-CeO<sub>2</sub> catalyst for CO oxidation was compared to those of Pd/CeO<sub>2</sub> catalysts which were prepared by using nanocrystalline CeO<sub>2</sub> (nano-CeO<sub>2</sub>) and bulk-CeO<sub>2</sub> as the supports. And nano- and bulk-CeO<sub>2</sub> and Pd-CeO<sub>2</sub> materials were investigated using H<sub>2</sub>-temperature programmed reduction, O<sub>2</sub>-temperature programmed oxidation and CO-temperature programmed desorption to support the enhanced activities for low temperature CO oxidation.