

CO Oxidation Performances: Cu Oxides Versus Ni, Pd-TiO₂@SiO₂ Core-Shell Nanostructures

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We prepared Cu oxides, and Ni and Pd-TiO₂@SiO₂ core-shell nanostructures, and tested their CO oxidation performances by temperature-programmed mass spectrometry. We found the starting temperatures of CO oxidation are around 200°C and 300°C for Ni and Pd-TiO₂@SiO₂ nanostructures, respectively. Cu oxides are cubes with 50~200 nm with, prepared with different concentrations of NaOH and ascorbic acid. For the core-shell structures, we prepared 100 nm SiO₂ spheres, first coated the surface with TiO₂ precursor, and then coated with Ni and Pd. Their characteristics are further examined by scanning electron microscopy, optical microscope, FT-IR, and UV-Vis absorption spectroscopy.

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