

Abstract

Efficient Approaches for the Reduction of Precious Metals: Intermetallic and Morphological Controlled Catalytic Centers are Promising

There is a growing need for the reductions of precious metals (Pt, Pd, Rh) in automobile technologies, for instance exhaust purification due to the limitations of their resources. In recent, Pt-based intermetallic- as well as morphological controlled catalytic centers showed an outstanding catalytic activity and are greatly promising for the possible practical catalytic centers in the future automobile technologies. SiO₂-supported Pt-based intermetallic with early *d*-block element, Pt₃Ti nanoparticles, showed higher CO conversion than SiO₂-supported pure Pt nanoparticles containing even two-fold more weight fraction of Pt. The morphological controlled Pt, open-mouthed Pt microcapsules, exhibited a substantial CO oxidation catalytic activity than the pure Pt. The details over the synthesis, characterization, and their catalytic evaluation of these materials will be discussed.