

Deposition of Pd nanoparticles on oxide material

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Palladium is one of the materials used for catalysis in diverse chemical reactions. Smaller size of palladium can provide more surface area for these reactions. And palladium as nano-particles is preferred for this purpose. Several reactions are conducted at high temperature. But, Pd nano-particles can be agglomerated to lose its nature as nano-particles at high temperature. To solve this problem, we synthesized palladium nano-particles with high surface area and stable at high temperature by depositing palladium nano-particles on oxide materials. Using oxide materials as support, the deactivation of palladium particles due to sintering can be prevented. Palladium with a size of around 3-4nm was deposited on oxide material using palladium nitrate as a precursor and sonochemical treatment. To characterize palladium nano-particles, TEM(transmission electron microscope), SEM(scanning electron microscope) and XRD(X-ray Diffraction) analysis were used.