

Ordered mesostructured metal-inorganic oxide nanocomposite synthesized with electroless plating method

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In this work, ordered mesostructured metal-inorganic oxide nanocomposites were synthesized with electroless plating method of nickel and cobalt in Pd-activated mesopores of ordered mesoporous materials (OMMs). The composition of each electroless bath was prepared with a slightly modified method from the typical hypophosphite bath composition. The specific surface area and the pore size distribution of the samples were measured by physisorption method. The ordered mesoporous structure of the samples were investigated by small angle x-ray scattering (SAXS) analysis. A peak of (100) reflection plane was detected from the SAXS analysis, indicating that the synthesized nanocomposites had the ordered mesoporous structure. The crystalline structure of plated metal and the morphology of the samples were investigated by x-ray diffraction (XRD) and transmission electron microscopy (TEM) analyses.