Oxidation facility by a temperature dependence on the metal noble nanostructured M°/MxOy phase products using a solid state method: The case of Pd

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Pyrolysis at 800°C under air of the macromolecular precursor Chitosan· (PdCl2)n and PS-co-4-PVP·(PdCl2)n in solid state afford the mixture phases Pt/PdO depending on the molar ratio metal /polymer. For the 1:1 Chitosan· (PdCl2)n and PS-co-4-PVP· (PdCl2)n precursors the pure phase PdO was obtained while that for another molar ratios 1:5 and 1:10, the mixture phase Pt/PdO were obtained. For the 1:10 PS-co-4-PVP· (PdCl2)n precursor the core/shell PdO@Pd nanoparticles as small as 4 nm were observed. Optical properties for the PdO indicate an insulator behavior.