

Electrodeposition of Pd nanotubes and nanowires as promising hydrogen sensing materials

체르브코, 지에푸¹, 정찬화^{1,*}

성균관대학교 화학공학과; ¹성균관대학교

(chchung@skku.edu*)

Recently, palladium nanowires and nanotubes have received considerable attention because of their potential application as an active element in the hydrogen sensor and also because of their catalyst capabilities. The porous alumina oxide (AAO) and polycarbonate (PC) track-etched membranes are usually utilized as templates for the preparation of such nanoscopic structures. To obtain nanoscopic structure, different methods, such as electroplating for production of metal nanowires and chemical deposition for obtaining of nanotubes are applied.

In this work we present studies on palladium nanowires and nanotubes preparation by single electrodeposition method. The chemical composition of prepared nanostructures was measured by the energy dispersive X-ray analysis (EDX), performed in a scanning electron microscope (SEM). Structural properties were examined by X-ray diffractometry. Palladium nanostructures were deposited within 200 nm pore size commercial (C) and 60 nm pore size homemade (HM) AAO from a commercially available electrolyte. The growing mechanism of Pd deposition was studied by examination of current-time curves.