

## ATO Nanoparticles as Support for Reduction and Evolution Oxygen Reactions in PEM Electrolysers

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### ABSTRACT

Sb was used as dopant of SnO<sub>2</sub> to prepare a powder of conductive nanoparticles with the aim to be used as a support for PEM electrolyzers and fuel cells, the support were prepared by a chemical coprecipitation method. In this work it is reported the physicochemical characterization and evaluation of the electrochemical response of the powder of antimony doped tin oxide as catalytic supports for ORR and OER. Pt and IrO<sub>2</sub> were used as catalysts in the electrochemical oxygen reactions. The ATO was characterized by X-ray Diffraction (XRD), High Resolution Transmission Electron Microscopy (HRTEM) and Energy Dispersive Spectrometry (EDS) techniques. The resistivity of SnO<sub>2</sub> Sb doped conductive nanoparticles was measured by using a Milliohmeter system, The electrochemical properties respect to the oxygen reactions were obtained by using CV, LV, RDE, EIS and chronoamperometry techniques. The material obtained presented nanoparticles sizes of 6-8 nm and the electrochemical results indicate that ATO nanoparticles synthesized can be used as support in electrolyzers and fuel cells.

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*Keywords:* ATO, OER, Coprecipitation

