Fabrication of MnO_x/MWCNTs-GC Nanocatalyst for Oxygen Evolution Reaction

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Manganese oxide (MnO_x) and multiwalled carbon nanotubes (MWCNTs) are intended to modify the GC electrode for oxygen evolution reaction (OER). Optimization of MnO_x loading is carried out and the deposition of 55 cycles was sufficient to obtain the highest activity toward OER. The stability of the catalyst is enhanced by the addition of MWCNTs. As a result, an amount of 22 kWh/Kg of O₂ of energy is saved. Several techniques including cyclic voltammetry, linear sweep voltammetry, chronoamperometry, chronopotentiometry, field-emission scanning electron microscopy, and energy dispersive X-ray spectroscopy will be combined to track the catalyst activity and to determine its morphology and composition.

Keywords: Oxygen evolution reaction; Water electrolysis; Manganese oxide; Carbon nanotubes.

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