

Preparation and characterization of lead dioxide electrode using sol-gel and electrochemical coating in aqueous/non aqueous combined medium towards long term stability

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The plating bath of metal oxide plays an important role to determine the property and characteristic of metal oxides nano particles. Commonly PbO₂ is deposited on metal surface by the electrodeposition, spray coating, spin coating and electro less deposition methods. Among them, electrochemical deposition has achieved uniformity, adherence and rough coating. But strong alkaline medium and acid medium are being conventionally used for Synthesis of PbO_2 and PbO_2 respectively. Here we synthesized PbO₂ from non-aqueous and sol-gel medium at optimized current density and concentration of H₂O. The synthesized electrode was characterized by the XRD, SEM and Cyclic voltammetry, and stability test. The prepared PbO₂ (non-aq) has shown higher life time than the PbO₂(sol-gel) electrode.