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Effects of Precursors for Preparing Intermediate Layer on the Performance of Ti/SnO2+Sb2O3/PbO2 Anode

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摘要 The Ti/SnO2+Sb2O3/PbO2 anode with SnO2+Sb2O3 intermediate layer obtained by the polymeric precursor method (PPM) and with the conventional route was studied. The morphology and microstructure of SnO2+Sb2O3 intermediate layer derived from different precursors and the top PbO2 active layer were examined by means of ESEM and XRD. The lifetime and electrocatalytic activity of the anode were also assessed by the cyclic voltammetry and accelerated lifetime test in 1.0 mol/L H2SO4 solution. It was found that precursor solvents affected lifetime, microstructure and morphology of the anode, and had little influence on electrocatalysis activity of the electrodes. The accelerated lifetime of Ti/SnO2+Sb2O3/PbO2 anode with intermediate layer prepared by PPM was 29.5 h in 1.0 mol/L H2SO4 solution, which was respectively about four times and twice that of the anode prepared with ethylene glycol and ethanol. After the anode was subjected to thermal corrosion, the lifetime still reached 27 h in contrast to the others.

关键词 intermediate layer active layer precursor electrocatalysis

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