

## Design, Construction and Performance Evaluation of a Solid Polymeric Electrolyzer

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### ABSTRACT

In this paper the design, construction and characterization of a Solid Polymer Electrolyte (SPE) as water electrolyzer is presented. As anode, titanium grade 2 with geometric surface area of 12 cm<sup>2</sup> impregnated with a mixture of oxides of RuO-IrO<sub>2</sub>/Ti was used. This material offer advantages in terms of stability, resistance to extreme corrosion and good electrical conductivity, determined by chronoamperometry experiments. Commercial carbon black supported Pt (Pt/C 20wt%) was used as a cathode electrode. The electrolyzer uses DC power which was supplied by a 30W solar panel. The hydrogen produced was fed to a 5W PEM fuel cell.

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