

عنوان مقاله:

Experimental study of microwave assisted of saline water electrolysis

محل انتشار:

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خلاصه مقاله:

In this article, an up-flow cylindrical electrochemical reactor has been used to study the microwave assisted of saline water desalination. The influence of main operating parameters such as current density ($10-55 \text{ mA/cm}^2$), cell potential ($9-18 \text{ V}$), electrolysis time ($30-120 \text{ s}$), and electrode diameters ($8-20 \text{ mm}$) and materials (Al and Fe) on the desalination and the energy consumption of microwave assisted saline water electrolysis have been investigated experimentally. Also, these parameters have been optimized correspond to maximum desalination and minimum energy requirement. The results have shown that Optimum current density, cell potential, and electrolysis time correspond to minimum EC and minimum energy requirement are obtained in the range of $30-35 \text{ mA/cm}^2$, $12-14 \text{ V}$, and $60-80 \text{ s}$, respectively. The anode diameter of 16 mm corresponding with the anode to cathode distance of 15 mm has shown the best results in experiments.

کلمات کلیدی:

microwave, desalination, electrochemical reactor, energy consumption, current density, cell potential

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