Performance of Hydrogen-Bromine Fuel Cells

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Abstract*

One of the particular merits of the hydrogen-bromine ion exchange membrane regenerative fuel cell system is that the hydrogen-bromine couple is highly reversible. In early cells, bromine diffusion through the membrane caused deterioration of the hydrogen electrode. Data are presented on the successful development of a new membrane designed to overcome this problem. The effect of the brominating environment on the membrane is discussed.

Experimental data are also presented that demonstrate the effect of wide variations in the composition of the Br_2-HBr-H_2O electrolyte on the voltage, cell resistance and performance capabilities of H_2-Br_2 cells at several temperature levels. Various inorganic bromide salts have also been investigated as possible bromine solubilizers and the resulting voltage and resistance data are presented and evaluated.

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