

AN ELECTROCHEMICALLY REGENERATIVE HYDROGEN-HALOGEN ENERGY STORAGE SYSTEM

General Electric Co.

The General Electric Co. carried out tests on a 0.05 ft.² hydrogen-chlorine cell as a function of temperature and pressure. Pressures up to 10 atmospheres and temperatures up to 80 °C were investigated. Increasing the pressure increases the discharge performance of the cell considerably because of the increased solubility of chlorine. Increase in temperature improves both the charge and discharge performance because of the reduction in the membrane resistivity.

General Electric also investigated hydrogen-bromine cells, low cost carbon bromine electrodes gave equivalent performance to noble metal electrocatalysts. Cell performance was investigated in the HBr concentration range of 5 - 40%.

Recent publications

- 1 J. F. McElroy, Hydrogen-halogen energy storage system development, *Final Rep. Contract No. 410127-5, January 20, 1978.*
- 2 J. F. McElroy, Hydrogen-chlorine breadboard system tests, *Contract No. 456604-5, September 29, 1978.*
- 3 J. F. McElroy, Hydrogen-chlorine breadboard system tests, *Contract No. 456604-5, December 31, 1978.*

HYDROGEN/CHLORINE ENERGY STORAGE SYSTEM: SAFETY, PERFORMANCE AND COST ASSESSMENT

Oronzio de Nora

Oronzio de Nora (ODN) has carried out a complete study of a 20 MW/200 MW h H₂/Cl₂ energy storage system with emphasis on safety and cost aspects of such a plant. An H₂/Br₂ system has also been considered as a comparison to the base case. One of the most significant results of this study was confirmation of the fact that a high performance safe plant could be constructed using only equipment already available and tested on stream in