

51-25

Aug 1987

200135

N89 - 23003

**THE APPLICATION OF ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY FOR CHARACTERIZING THE DEGRADATION OF Ni(OH)<sub>2</sub>/NiOOH ELECTRODES**

Digby D. Macdonald  
SRI International  
Menlo Park, California

1

In this paper we describe the use of wide-band electrochemical impedance spectroscopy for characterizing the degradation of porous Ni(OH)<sub>2</sub>/NiOOH electrodes in concentrated KOH electrolyte solutions. The impedance spectra are interpreted in terms of a finite electrical transmission line and the changes in the components of the electrical analog are followed as a function of cycle number. We show that the degradation of the capacity of rolled and bonded Ni(OH)<sub>2</sub>/NiOOH electrodes is caused by rupture of ohmic contacts within the active mass and by restructuring which results in a decrease in the number of active pores.