

The strange behavior of catalysts made from Pd or Pt applied to Al₂O₃

#Edmund Storms
Kiva Labs, USA

Email: storms2@ix.netcom.com



Studies of LENR using electrolysis frequently employ a catalyst in the cell in order to turn excess D₂ and O₂ gases back to D₂O liquid. Accurate measurement of power requires the efficiency of the catalyst to be high and very reliable. The commercial catalysts based on Pd+Al₂O₃ and Pt+Al₂O₃ frequently used for this purpose have been found to exhibit poor reliability and novel behavior.

In particular, the catalyst has been observed to show a regular periodic turning on and off that occurs for significant duration at unexpected times. This behavior can give false information about excess energy production. Figure 1 shows an expanded example of a few cycles showing how the change in recombiner temperature changes the cell temperature. Once started, this periodic process can last for long times, as shown in Fig. 2. As this figure shows, the reaction at the recombiner can change the apparent excess energy and the open circuit voltage (OCV).

FIGURE 1. A few cycles showing effect of recombiner temperature on the electrolyte temperature

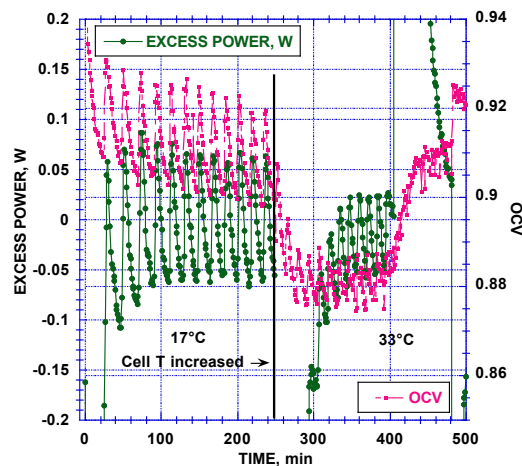
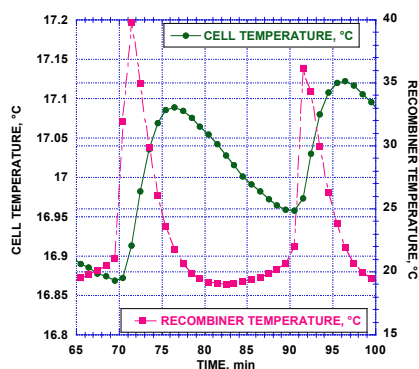


FIGURE 2. Example of many cycles and their effect on excess power and open circuit voltage.

This behavior allowed an unexpected feature of the recombination process to be revealed. The response of the calorimeter and OCV were much faster than could be caused by normal conduction of heat energy. Apparently, radiation, was produced that could pass through 3 mm of Pyrex and change the temperature of the surrounding thermoelectric converters. At the same time, the chemical activity of D in the surface of the cathode is increased after the radiation has passed through the electrolyte. Use of either normal hydrogen or deuterium in the electrolyte produced the same effect.