Validation of Electrical Power Generation by Second-Generation CIHT Technology

Valuator:

K.V. Ramanujachary
Professor
Department of Chemistry and Biochemistry
Rowan University, Glassboro, NJ, 08096

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BlackLight Power Corporation

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BLACKLIGHT POWER (BLP) CIHT CELL VALIDATION (November 2011)

The present report deals with the studies aimed at validating several second generation CIHT (Catalyst-Induced-Hydrino-Transition) cells that were assembled at the BLP facility. In contrast to the first generation cells, BLP has identified a novel proprietary electrolyte consisting of earth-abundant and eco-friendly chemicals. All tests were performed at BlackLight Power, Inc. at their Cranbury, NJ laboratories. The primary focus of the validation is to analyze the net electrical production from proprietary CIHT cells using the hydrogen fuel from water and supply it to the electrochemical reaction. The electrical output was corrected for highest energy possible for any known conventional electrochemical reactions based on the initial and final analysis of the cell contents. The electrical energy balances were performed with multiple state-of-the-art battery testing systems (Arbin BT2000) that were calibrated to high accuracy (<0.1% error) at the factory and confirmed using a digital oscilloscope at BLP. The net electrical energy gain determined in this manner for many different systems, configurations, and modes of operation were 162%, 340%, 385%, 167%, 195%, 456%, 735%, 182%, 151%, 425% and 186%.

Typically, steady electrical power was continuously measured from the cell for more than a week and up to more than 30 days before the cell was stopped and the cell contents were analyzed by a cascade of characterization tools. These tests were necessary for an accurate determination of potential chemical changes. Controls were processed under the same protocol and analyzed using the same analytical instruments in triplicate. Measurements included weight change of the active electrode (anode) and any compositional change of the electrolyte by compositional analysis using ICP, XRF and XRD. Special systems were run with controlled mass flow to rule out the possibility of hypothetical conventional energy contributions. ‘“Hydrino” product was identified by the presence of an upfield-shifted NMR peak characteristic of reduced-radius (lower-energy) hydrogen.

Each CIHT cell comprised a set of metal electrodes and an ionically conductive electrolyte. Water supplied as vapor to the cell or extracted from air, from which hydrogen was generated by electrolysis, appears to be the source of electric energy output. Due to the electrochemistry occurring in the cell, an electric current flowed through a load of the electrical testing instrument with an internal ion flow of the electrolyte completing the electric circuit. The mechanism of operation appears to involve specific chemicals of the electrolyte that formed the catalyst and atomic hydrogen during electron and ion flow needed for the production of electricity. The excess electricity observed was consistent with the electrochemical production of low-energy form of hydrogen providing the energy source. Indeed, the electrical energy out surpassed by multiples the electricity required to generate the hydrogen fuel from water. The cell was continuously regenerative and operated at constant power output for extended periods. The mass and energy balances were performed on each cell. The electrode at which the electrical power was developed (anode) was weighed to rule out the possibility of any reaction that could give rise to excess electrical energy observed in the present CIHT cells. The electrolyte was also carefully analyzed by elemental analysis. Controls comprised the same starting compositions and treatments as the electrical-power-producing anodes and electrolytes.

The cell used nontoxic, earth-abundant commodity chemicals, and the system operating conditions were similar to those of existing technologies such as batteries and fuel cells. However, the stand-alone generation of electricity from water reported here is truly exceptional. The confirmatory electrical and analytical data and analysis is available upon request.