Water-Free Replication of Pons-Fleischmann LENR

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Excess heat has been produced by a method conceptually similar to that of Pons and Fleischmann[1] except that it does not involve electrolysis or even water (heavy or light). Instead of putting hydrogen into the system by operation for a few days, the hydrogen solute is quenched into the electrode alloy, by temperature and pressure, before the cell is assembled.

The cell contains two hydrogenated alloy electrodes separated by an insulating textile layer. Substituting for the Pons-Fleischmann (P-F) electrolyte, an oil based conductor containing very fine particles of an electrically conducting solid is soaked into the separator textile. Thus, the cell is a low Q capacitor, with the nuclear active environment[2] initially installed.

I believe that a basis for the P-F effect is a critical distribution of electric current across the surface of the cathode, both spatially and temporally, that is regulated by the moving layer of electrolytic hydrogen bubbles on that surface. Erratic behaviour of those bubbles accounts for the inconsistency typically observed in P-F experiments. In my work, the fine particles in the conductor create near-point-sources of current that (with brownian motion) create the charge distribution that seems necessary to trigger the nuclear reaction producing P-F excess heat.

Typically, the low Q capacitor method has yielded about 15% more thermal energy than electric power input. Excess heat increases disporportionally with increasing electrical current. The system seems far from optimized, however.

With the oil-based conductor, excess heat appears almost immediately, and much more consistently, compared to the classic P-F method. There are also more, and more-controllable, variables for optimization of the effect.

This presentation will report experiments using a well-controlled, evacuated, seebeck-type calorimeter using direct current activation. Total power is typically a few hundred milliwatts; electrode mass is one to two grams. Most experiments have been with copper based alloys; nickel is under way. Results with and without light hydrogen solute are shown. Use of additional alloying ingredients (especially boron) is described.

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[1] Pons, Fleischmann and Hawkins: “Electrochemically induced nuclear fusion of deuterium” J. Electroanalytical Chem. 26. page 301, (1989).
[2] Edmond Storms “The Science of Low Energy Nuclear Reaction” , p123. World Scientific Publishing Co,, (2007)