

MATERIALS USED IN COLD FUSION EXPERIMENTS

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SHORT DESCRIPTION OF TYPE OF EXPERIMENT: Matched-cell electrochemical experiments to measure comparative heat output and ^3He and ^4He production in Pd electrodes using both light water and heavy water cells.

RESULTS AND COMMENTS:

Within the sensitivity of the experiments, ~~no excess~~ there was no significant change in temperature in either cell, once steady conditions were established. No ^4He was detected in either Pd cathode, with a detection limit of between 10^{10} and 10^{11} atoms per g. of sample. A small amount of ^3He was detected in the Pd from the D_2O cell, but it was of the order of the expected amount from charging with the level of tritium present in the initial heavy water. Neutron count rate remained at background.

There was no evidence for nuclear fusion.

I. MATERIALS USED FOR ELECTROCHEMICAL EXPERIMENTS (please complete one sheet for each experiment)

CATHODES

ANODES
(Corresponding)
Platinum

MATERIAL

Palladium

PURITY

(No record, but was purchased as an evaporation source)

ALLOYING ELEMENTS

None detected by EDX analysis.

SOURCE OF MATERIAL

Specialty Metals and Alloys, Grove City, Ohio (purchased July, 1978)

PREPARATION CAST OR WROUGHT ANNEALED

Swaged and drawn to 1mm diameter & baked out in vacuum at 600°C for 3 hours

ATMOSPHERE VACUUM

SPECIAL TREATMENT

CHARACTERIZATION STRUCTURAL

EDX of starting material — only Pd detected.

CHEMICAL

BEFORE OR AFTER USE METHODS RESULTS

Auger, SIMS, & XPS of surface after use. Elements detected included Si, S, Cl, C, Ca, Pd, O, Fe, and possibly Cu & Mg by Auger. SIMS detected H, Li, C, Na, Al, K, Ca, Fe, Pd, and possibly Ti, Cr, & Cu. XPS showed Fe, O, Ca, Pd, C, Si, and a trace of Al.

NOTABLE OBSERVATIONS

No evidence of nuclear fusion.

D / METAL RATIO ATTAINED

EXPERIMENT YIELDED HEAT
NEUTRONS
TRITIUM
HELIUM

_____yes	_____X_____no
_____yes	_____X_____no
_____yes	_____X_____no
_____yes	_____X_____no