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Time-Dependent Changes in Morphology and Composition of Solid Particles Collected From Heavy Water Electrolyte after Electrolysis with a Palladium Cathode JOHN DASH, Q. WANG, Low Energy Nuclear

Laboratory, Portland State University, Portland, OR 97207 — Recently, we have observed particles floating on the surfaces of electrolytes after electrolysis, in four cells, each of which contained a heavy water electrolyte and a Pd cathode. Solid particles were unexpected from electrolysis, so it seemed important to characterize these particles. Cu grids were used to collect particles from the electrolyte surface. Then, a scanning electron microscope (SEM) and an energy dispersive spectrometer (EDS) were used to study the surfaces of these particles and to record time-dependent changes which were occurring. The morphology and composition of the particles were determined . After storage at ambient for 11 days, there were large changes in the morphology and composition of the particles. For example, one portion of the particles contained a large number of microspheres. A typical microsphere contained mostly carbon and palladium, whereas the matrix near the microsphere contained mostly palladium with less carbon and a significant amount of silver. One day later the same microsphere had increased carbon and reduced palladium, but there was no significant change in the composition of the matrix. Results for other particles from other cells will also be presented.

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