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Observation of Anomalous Heat Release and Helium-4 Production from Highly Deuterated Palladium Fine Particles

Yoshiaki Arata and Yue-Chang Zhang

Cooperation Research Center for Advanced Science and Technology, Osaka University, 11-1 Mihogaoka, Ibaraki, Osaka 567-0047, Japan

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Abstract:

Observations were made of the anomalous production of ^4He atoms as well as the anomalous heat release when Pd fine particles are highly deuterated inside an enclosed Pd metal vessel used as a cathode in electrolysis of D_2O . A mass analysis of the remnant Pd powders after the 2000-hr heat production revealed substantial production of ^4He atoms.

Keywords: double-structure cathode, deuterated Pd, Pd black, electrolysis, excess energy, ^4He production

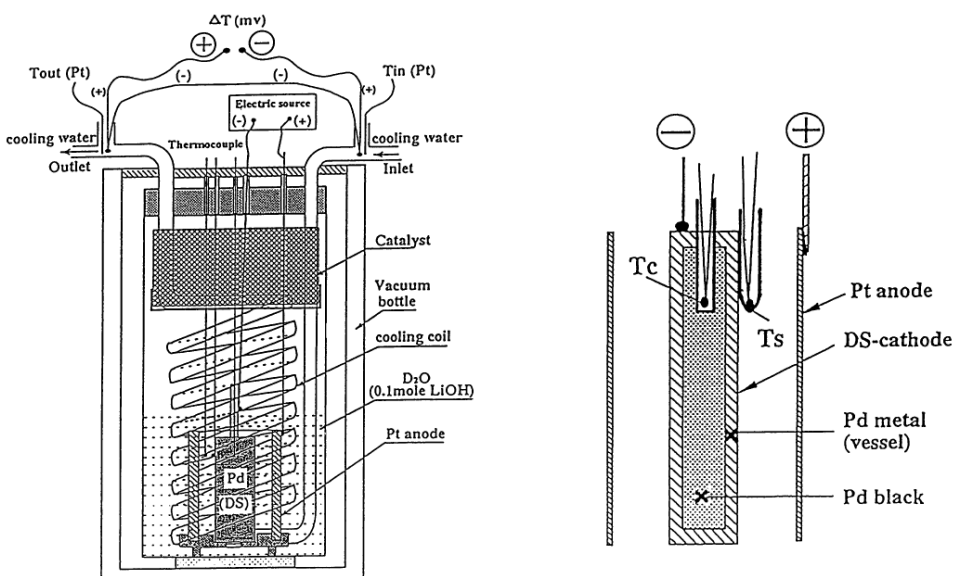


Fig. 1. (Left) Schematic view of the electrolysis apparatus with a DS-cathode. The DS-cathode is surrounded by a cylindrical Pt anode. The electrolyte (water+0.1 M LiOH) is continuously cooled by chilled water flowing through a cooling coil. (Right) Structure of the DS-cathode used for the present experiments. Fine particles of Pd (Pd black) of about 20 nm diameter are enclosed in a vacuum in a Pd metal vessel of 3 mm wall thickness, 14 mm outer diameter and 50–70 mm length.