^{107}Pd

The identification of ^{107}Pd was described by Schindewolf in the 1958 paper "Mass assignments of 23-sec Pd^{107m} and 4.8-min Pd^{109m}; search for <3-sec Pd^{105m}" (1958Sc03). Enriched ^{106}Pd targets were irradiated with slow and fast neutrons produced by bombarding beryllium with 15 MeV deuterons from the M.I.T. cyclotron and ^{107}Pd was formed in neutron-capture reactions. ^{107}Pd was also observed in (n,2n) reactions off enriched ^{108}Pd. Gamma- and beta-rays were measured with a NaI(Tl) scintillation counter and a β-proportional counter, respectively. "The formation of the 23-sec and 4.8-min Pd isomers by neutron activation of Pd^{106} and Pd^{108} samples leads to the mass assignments 23-sec Pd^{107m} and 4.8-min Pd^{109m}." The 23(2) s half-life was observed to decay by a 210 keV internal transition populating the ground state. Previously, this half-life had been incorrectly assigned to ^{105m}Pd (1952Fl10). The 6.5(3)$\times 10^6$ y half-life of the ground-state was measured eleven years later by Flynn and Glendenin (1969Fl04) after it had been previously been reported only in a classified report (1949Pa17).

Adapted from reference (2013Ka01)

1949Pa17 G. W. Parker, G. E. Creek, G. M. Hebert, and P. M. Lantz, REPT-ORNL-336 **336**, p. 42 (1949).
1952Fl10 A. Flammersfeld, Z. Naturforsch. **7**, 296 (1952).
1958Sc03 U. Schindewolf, Phys. Rev. **109**, 1280 (1958).
1969Fl04 K. F. Flynn and L. E. Glendenin, Phys. Rev. **185**, 1591 (1969).
2013Ka01 J. Kathawa, C. Fry, and M. Thoennessen, At. Data Nucl. Data Tables **99**, 22 (2013).

Please cite this abstract as: "FRIB Nuclear Data Group, *Discovery of Nuclides Project*, Isotope Database, doi:10.11578/frib/2279152"