

¹⁴¹Ba

Katcoff published the identification of ¹⁴¹Ba in an article of the Plutonium Project Record in 1951: “Radiations from 3.7h La¹⁴¹” (1951KaZW). Uranyl nitrate was irradiated with slow neutrons produced with the Chicago cyclotron and the A=141 mass chain of the ¹⁴¹Ba-¹⁴¹La-¹⁴¹Ce relationship was established: “About 75 min was then allowed for 3.7h La¹⁴¹ to grow into the solution from its 18m Ba¹⁴¹ parent... The β-decay curve shows a long-lived component (probably the 28d Ce¹⁴¹ daughter of 3.7h La¹⁴¹) and small amounts of 30h and 1.5h components; but the 3.7h component greatly predominates.” Hahn and Strassmann had originally reported this half-life in barium for the first time (1942Ha06) modifying a previous observation of a single 14 m component (1939Ha16) into two components of 18 m and 6 m. Hahn and Strassmann also observed the relationship of the 18 m half-life with a 3.5 h component in lanthanum. However, no specific mass assignment was made. In another paper in the Plutonium Project Record Goldstein mentioned the established relationship of the mass chain (1951GoZX) quoting two internal classified reports of the Plutonium Project by Ballou and Burgus. While the first report (CC-529) is still classified, the second one (CC-579) has been unclassified (1943BaZQ).

Adapted from reference (2010Sh20)

- 1939Ha16 O. Hahn and F. Strassmann, *Naturwissenschaften* **27**, 89 (1939).
1942Ha06 O. Hahn and F. Strassmann, *Naturwissenschaften* **30**, 324 (1942).
1943BaZQ N. E. Ballou, REPT-CC-579 **579**, p. 15 C (1943).
1951GoZX A. Goldstein, *Radiochemical Studies: The Fission Products*, Book 2, Part V, McGraw-Hill, p. 1096 (1951).
1951KaZW S. Katcoff, *Radiochemical Studies: The Fission Products*, Book 2, Part V, McGraw-Hill, p. 1147 (1951).
2010Sh20 A. Shore, A. Fritsch, J. Q. Ginepro, M. Heim *et al.*, *At. Data Nucl. Data Tables* **96**, 749 (2010).

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