

¹⁴²Ba

The first accurate identification of ¹⁴²Ba was published by Schuman et al. in 1959 in the article “Decay of Short-Lived Barium and Lanthanum Fission Products” (1959Sc36). Enriched ²³⁵U was irradiated in an MTR pneumatic rabbit facility of the Atomic Energy Division of the Phillips Petroleum Company at Idaho Falls, Idaho. Fission products were chemically separated and the β - and γ - decays of the fragments were measured. “The gamma-ray spectra of the barium samples showed photopeaks decaying with two half-lives, 11 min for Ba¹⁴² and 18 min for Ba¹⁴¹ and in addition the lanthanum daughter photopeaks growing in.” The 6 m half-life reported by Hahn and Strassmann without mass assignment in 1942 (1942Ha06) was in the 1958 edition of the Table of Isotopes (1958St50) still listed under classification D: Element certain and mass number not well established. Malý et al. confirmed that value reporting a half-life of 5.9 m for ¹⁴²Ba in 1958 (1958Ma57) while giving credit to Hahn and Strassmann. Due to the large discrepancy of this half-life with the correct value and because the original observation did not assign the mass, we credit Schuman et al. with the first correct identification of ¹⁴²Ba.

Adapted from reference (2010Sh20)

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