

^{143}Ce

The first identification of ^{143}Ce was reported by Ballou and Burgus in 1951 in “Cerium and praseodymium activities of masses 141 and 143” (1951BaZZ) as part of the Manhattan Project as summarized in 1946 (1946PI01). Cerous nitrate samples were irradiated with fast and slow neutrons produced by deuteron irradiation of beryllium at the Chicago cyclotron. ^{143}Ce was identified following chemical separation: “From the graphically determined discrete activities it is found that the ratio of the 33h Ce activity to the 28d Ce activity is 13.1 for the slow-neutron irradiation and 8.8 for the fast neutron irradiation. It is evident that with fast neutrons the 28d activity was enriched, and therefore this activity has the isotopic assignment of Ce^{141} . The 33h activity must then be due to Ce^{143} .”

The assignment was changed from the original compilation (2009Gi07) which credited a 1948 paper by Pool and Krisberg (1948Po01) with the discovery of ^{143}Ce . The 2016 update of the discovery project stated: “Many fission fragments were identified within the Manhattan Project and the detailed results were only published in 1951 as part of the National Nuclear Energy Series (1951CoZZ). However, a survey of the properties of the fission fragments had already been published in two simultaneous publications in the Journal of the American Chemical Society and Reviews of Modern Physics (1946PI01) quoting the still classified papers. Thus researchers at the time were aware of the results and credit for the discovery should be given to the initially classified work if it was included in the survey paper” (2016Th03).

- 1946PI01 J. M. Siegel and for the Plutonium Project, Rev. Mod. Phys. **18**, 513 (1946).
- 1948Po01 M. L. Pool and N. L. Krisberg, Phys. Rev. **73**, 1035 (1948).
- 1951BaZZ N. E. Ballou and W. H. Burgus, Radiochemical Studies: The Fission Products, Book 2, Part V, McGraw-Hill, p. 1168 (1951).
- 1951CoZZ C. D. Coryell and N. Sugarman, Radiochemical Studies: The Fission Products, Book 2, Part V, McGraw-Hill (1951).
- 2009Gi07 J. Q. Ginepro, J. Snyder, and M. Thoennessen, At. Data Nucl. Data Tables **95**, 805 (2009).
- 2016Th03 M. Thoennessen, Int. J. Mod. Phys. E **25**, 1630004 (2016).

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