

²³⁹Cm

The observation of ²³⁹Cm was reported in 2008 by Qin et al. in the paper “Search for the ‘missing’ α -decay branch in ²³⁹Cm” (2008Qi03). A 74 MeV ¹²C beam from the UNILAC at GSI bombarded ²³²Th targets to produce ²³⁹Cm in the 5n fusion evaporation reaction. Reaction products were collected on a rotating catcher wheel and subsequently radiochemically separated. “Two main γ -lines from the EC decay of ²³⁹Cm were observed at 188.2 and 146.2 keV, with absolute abundances of 36% and 12%, respectively, from the decay of daughter ²³⁹Am. The α -branch of ²³⁹Cm was determined to have an upper limit of less than 1×10^{-5} .” Qin et al. did not consider their observation a discovery referring to a 1952 private communication (1952Ca42). In 1956, Glass et al. reported excitation functions for the ²³⁹Pu(α ,4n)²³⁹Cm without measuring any properties of ²³⁹Cm (1956G180). The 1967 Table of Isotopes (1967Le24) listed half-lives of 3.0 h (1952Ca29) and 2.9 h (1958Va37) which were based on private communications. These values are also quoted in the Nuclear Data Sheets for A=235,239 in 2003 (2003Br12). Qin et al. could not confirm the three α -decay events assigned to ²³⁹Cm in an internal report (2002ShZS).

- 1952Ca29 A. A. Caretto Jr. and E. O. Wiig, J. Am. Chem. Soc. **74**, 5235 (1952).
1952Ca42 R. J. Carr and G. H. Higgins, Priv. Comm. , quoted by 1967Le24 (1967).
1956G180 R. A. Glass, R. J. Carr, J. W. Cobble, and G. T. Seaborg, Phys. Rev. **104**, 434 (1956).
1958Va37 R. Vandenbosch, Priv. Comm. , quoted by 1967Le24 (1967).
1967Le24 C. M. Lederer, J. M. Hollander, and I. Perlman, Table of Isotopes, Sixth Edition, John Wiley and Sons, Inc. , New York (1967).
2002ShZS N. Shinohara, Yu. N. Novikov, G. Munzenberg, H. Wollnik *et al.*, REPT-JAERI-TV **2001**, p. 45 (2002).
2003Br12 E. Browne, Nucl. Data Sheets **98**, 665 (2003).
2008Qi03 Z. Qin, W. Bruchle, D. Ackermann, K. Eberhardt *et al.*, Radiochim. Acta **96**, 455 (2008).

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