

⁹⁹Tc

Segré and Seaborg from the University of California at Berkeley described the discovery of ⁹⁹Tc in their paper “Nuclear Isomerism in Element 43” in 1938 ([1938Se01](#)). Deuterons and slow neutrons were used to bombard molybdenum targets. ⁹⁹Tc was identified by measuring β -, γ -, and X-rays correlating the decay to the half-life of a molybdenum isotope. “The irradiation of molybdenum with deuterons or slow neutrons produces a radioactive molybdenum isotope with a half-life of 65 hours which emits electrons with an upper energy of approximately 1 Mev. This molybdenum decays into a second activity which has a half-life of 6 hours and which emits only a line spectrum of electrons. Since the molybdenum emits electrons, the daughter activity must be ascribed to element 43.” Segré and Seaborg do not specifically mention ⁹⁹Tc; however, they quote a paper by Sagane et al., who had assigned the mentioned 65-h molybdenum activity to ⁹⁹Mo about two months earlier ([1938Sa01](#)). The measured half-life of ⁹⁹Tc corresponds to an isomer and the ground state half-life ($\sim 10^6$ y) was reported 13 years later by Lincoln and Sullivan ([1950Li04](#)).

Adapted from reference ([2012Ny02](#))

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[1938Se01](#) E. Segré and G. T. Seaborg, Phys. Rev. **54**, 772 (1938).
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