^{189}Re

In 1963, Crasemann et al. observed ^{189}Re as described in the paper "Properties of radioactive Re^{189}" (1963Cr06). Metallic osmium was irradiated with neutrons produced by bombarding beryllium with 20 MeV deuterons from the Brookhaven 60-in. cyclotron and ^{189}Re was produced in (n,p) and (n,pn) reactions on ^{189}Os and ^{190}Os, respectively. In addition, the reaction ^{185}W(α,p)^{189}Re was studied. Gamma-ray and conversion electron spectra were measured following chemical separation. "The half-life was determined by integrating areas under the 217- and 219-keV gamma-ray peaks in scintillation spectra that were recorded at intervals over periods of approximately five days each, using sources from three different bombardments (one Os+n, two W+α). The result obtained for the half-life of Re^{189} is 23.4$\pm$1.0 h." Previously reported half-lives of $\sim$150 d or $<$5 y (1951Li19), 250$-$300 d (1951Tu09), and 120 d (1962Bl12) were incorrect. Although Flegenheimer et al. (1963Fl07) submitted their results of a 23 h half-life nine days earlier we still credit Crasemann with the discovery because Flegenheimer et al. specifically acknowledged the work by Crasemann.

Adapted from reference (2012Ro36)

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