^{184}Hf

Ward et al. from Brookhaven National Laboratory reported the first observation of ^{184}Hf in the 1973 paper "Identification of ^{184}Hf" (1973Wa18). Natural tungsten and enriched $^{186}WO_3$ targets were bombarded with 92 MeV and 200 MeV protons, respectively, and ^{184}Hf was produced in the reaction ^{186}W(p,3p). Gamma- and beta-ray spectra were measured following chemical and mass separation. "Well-known γ-ray lines due to ^{184}Ta can be seen in [the figure]. These were observed to grow and decay as expected for a 4.12-h parent feeding an 8.55-h daughter. Lines at 139.1, 181.0, and 344.9 keV decayed with a half-life of 4.12$\pm$0.05 h and we assign these γ rays to ^{184}Hf." A previously reported 2.2(1) h half-life was only reported in an unpublished report (1961MeZZ) which subsequently was referred to by a cross section measurement of the reactions ^{186}W(p,3p) and ^{187}Re(p,4p) (1962Mo25). This latter reference did not contain any information about properties of ^{184}Hf.

Adapted from reference (2012Gr19)

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