^{53}Fe

In "Radioactive Isotopes of Iron", Livingood and Seaborg reported the production of ^{53}Fe in 1938 (1938Li06). The isotope was produced in the reaction ^{50}Cr(α,n)^{53}Fe with 16 MeV α-particles accelerated by the Berkeley cyclotron. The decay curves of the produced radioactivity were measured with a quartz fiber electroscope following chemical separation. The authors "believe the 9-minute activity to be due to Fe^{53} rather than to Fe^{55} because: (1) it is not produced by deuteron or slow neutron bombardment of Fe, (2) it is produced by fast neutrons on Fe, (3) attempts to produce ^{55}Fe by other reactions have not disclosed a 9 minute activity." The half-life was determined to be 8.9(2) m. In 1937, Ridenour and Henderson had observed a 9-minute activity; however, they were unable to make the unique mass assignment and attributed it to either the reaction ^{50}Cr(α,n)^{53}Fe or the reaction ^{52}Cr(α,n)^{55}Fe (1937Ri01). In an even earlier publication, they had preferred the later assignment (1937He06).

Adapted from reference (2010Sc18)

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