^{59}Fe

^{59}Fe was discovered by Livingood and Seaborg in 1938 as reported in "Radioactive Isotopes of Iron" (1938Li06). ^{59}Fe was produced in the reactions ^{58}Fe(d,p) and ^{59}Co(n,p) with 5.5 MeV deuterons from the Berkeley cyclotron. The neutron irradiation was performed by placing the target next to the cyclotron during the bombardment of deuterons on lithium. The decay curves of the produced radioactivity were measured with a quartz fiber electroscope following chemical separation. "It is at once apparent that only Fe^{59} can be negative electron active. Furthermore, the only radio-iron that can be made from cobalt with neutron is Fe^{59}, so that we are justified in ascribing the 47-day activity to this isotope." The measured half-life was 47(3) d. Livingood et al. had reported a 40 d iron activity in 1937 without attributing it to a specific isotope (1937Li02).

Adapted from reference (2010Sc18)

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