# $^{130}$Sb

Hagebo et al. reported the discovery of $^{130}$Sb in the 1962 article "Radiochemical studies of isotopes of antimony and tin in the mass region 127-130" (1962Ha16). Enriched $^{130}$Te targets were irradiated with neutrons produced by bombarding beryllium with 21 MeV deuterons from the Amsterdam cyclotron and $^{130}$Sb was formed in (n,p) charge exchange reactions. Decay curves were measured with a liquid $\beta$-counter or an end-window Geiger-Müller tube. "A first analysis of the gross decay curve of antimony samples obtained from the fast neutron irradiation of the tellurium-130 target disclosed half-lives of 10-15 min, about 5 hr and in addition traces of a long-lived tail. The last two components were evidently due to the decay of the 4.6 hr $^{129}$Sb formed by the (n,pn) reaction in tellurium-130. Corrections for the 129-chain and also for the activity formed by reactions in the 3.8 per cent tellurium-128 in the target were performed in a way similar to that described for the antimony-128 decay curve. The final analysis of the antimony decay curves gave two components of 7.1$\pm$0.4 min and 33$\pm$2 min." The latter half-life corresponds to the ground state of $^{130}$Sb. A 40 min half-life had been reported by Abelson without a mass assignment (1939Ab05). Earlier assignments of a 10 min half-life to $^{130}$Sb (1955Fr11, 1956Pa20) were later reassigned to $^{128}$Sb (1956Fr32).

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1939Ab05 P. Abelson, Phys. Rev. **55**, 670 (1939).
1955Fr11 I. Franz, J. Rodriguez, and H. Carminatti, Z. Naturforsch. **10**, 82 (1955).
1956Fr32 I. Franz, J. Rodriguez, and R. Radicella, Z. Naturforsch. **11**, 1037 (1956).
1956Pa20 A. C. Pappas and D. R. Wiles, J. Inorg. Nucl. Chem. **2**, 69 (1956).
1962Ha16 E. Hagebo, A. Kjelberg, and A. C. Pappas, J. Inorg. Nucl. Chem. **24**, 117 (1962).
2013Ka01 J. Kathawa, C. Fry, and M. Thoennessen, At. Data Nucl. Data Tables **99**, 22 (2013).



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