

^{157}Yb α decay [1977Ha48](#),[1979Ho10](#),[1970To16](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 170,1 (2020)	16-Aug-2020

Parent: ^{157}Yb : $E=0.0$; $T_{1/2}=38.6$ s 10; $Q(\alpha)=4622$ 6; % α decay=0.5

^{157}Yb -% α decay: 0.5% from ^{157}Yb Adopted Levels ([2004He29](#)) and based on estimate ([1977Ha48](#) and [1979Ho10](#)) from calculated ε half-life and measured half-life.

^{157}Yb produced by $^{162}\text{Er}(^3\text{He},8n\gamma)$, $^{103}\text{Rh}(^{58}\text{Ni},xn)$ and p spallation of Ta.

[1970To16](#): produced by $^{162}\text{Er}(^3\text{He},8n\gamma)$ with $E(^3\text{He})=85$ to 102 MeV. α 's measured in Si(Au) detector. Other reports by same author included [1970ToZS](#), [1970ToZU](#), and [1970ToZX](#).

[1977Ha48](#): produced by spallation of Ta target with 660 MeV p and followed by isotope separation. α 's measured in Si(Au) detector.

[1979Ho10](#): produced by $^{103}\text{Rh}(^{58}\text{Ni},xn)$ with $E(^{58}\text{Ni})=276$ MeV, and products separated with velocity selector. α 's measured with Si(Au) detector. Report by same author: [1981HoZM](#).

[1983Al09](#): quotes measured values but their origin is unknown.

 ^{153}Er Levels

E(level)	J $^{\pi}$	Comments
0.0	(7/2 $^-$)	J $^{\pi}$: Adopted value.

 α radiations

E_{α}	E(level)	I_{α}^{\dagger}	Comments
4504 6	0.0	100.	<p>E_{α}: Weighted average of 4500 10 (1970To16), 4507 10 (1977Ha48), and 4505 10 (1979Ho10).</p> <p>I_{α}: Relative intensity. Evaluator assumes all of the ^{157}Yb α decay is via this transition.</p> <p>HF: 1.7 for 0.5% absolute intensity of this α branch from the ^{157}Yb parent and the nuclear radius parameter $r_0(^{153}\text{Er})=1.563$ 40 deduced from interpolation (as unweighted average) of radius parameters of the adjacent even-even nuclides.</p>

† For absolute intensity per 100 decays, multiply by 0.005.