

$^{87}\text{Se} \beta^- \text{n} \text{ decay (5.65 s)}$ [1993Ru01](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	A. Negret and B. Singh		NDS 203,283 (2025)	20-Jan-2025

Parent: ^{87}Se : $E=0$; $J^\pi=(3/2^+)$; $T_{1/2}=5.65 \text{ s } 12$; $Q(\beta^- \text{n})=1135 \text{ keV } 4$; $\% \beta^- \text{n} \text{ decay}=0.60 \text{ } 12$

$^{87}\text{Se}-J^\pi$: From ^{87}Se Adopted Levels in ENSDF database (July 2015 update); assigned by [2013Rz02](#) and [2015Ko19](#) from systematics of $N=53$ isotones and comparison to shell-model calculations, with proposed dominant configurations ([2013Rz02](#)): $\nu_{3/2+} \otimes \pi_{0+}$, $\nu_{5/2+} \otimes \pi_{2+}$, and $\nu_{3/2+} \otimes \pi_{2+}$.

$^{87}\text{Se}-T_{1/2}$: unweighted average of $5.29 \text{ s } 11$ ([1993Ru01](#)); $5.8 \text{ s } 3$ ([1978Ze08](#)); $5.41 \text{ s } 10$ ([1971To13](#)); $5.9 \text{ s } 2$ ([1970De08](#)); $5.85 \text{ s } 15$ ([1970Kr05](#)); all values from decay curves for neutrons, except for decay curve for γ radiation in [1978Ze08](#). Weighted average is $5.51 \text{ s } 12$, but reduced $\chi^2=3.7$ is larger than 2.5 at 95% confidence limit. Value is $5.50 \text{ s } 14$ in ^{87}Se Adopted Levels in the ENSDF database (July 2015 update) as unweighted average of the same values as listed above, but it appears that weighted averaging has been taken, instead, in the ENSDF database.

$^{87}\text{Se}-Q(\beta^- \text{n})$: From [2021Wa16](#).

$^{87}\text{Se}-\% \beta^- \text{n} \text{ decay}$: $\% \beta^- \text{n}=0.60 \text{ } 12$ for decay of ^{87}Se ([1993Ru01](#), delayed neutrons measured). Others from neutrons in fission: $0.17 \text{ } 3$ ([1971To13](#), also [1968To06](#)) $0.51 \text{ } 17$ and $0.24 \text{ } 8$ ([1970Kr05](#)), $0.26 \text{ } 7$ ([1970De08](#)), $0.44 \text{ } 20$ ([1969WaZS](#)). [1993Ru01](#) quote $\% \beta^- \text{n}=0.36 \text{ } 8$ as unweighted average of $0.26 \text{ } 7$ (value of $0.23 \text{ } 7$ in [1970De08](#) adjusted by [1993Ru01](#)); $0.51 \text{ } 17$ and $0.24 \text{ } 8$ ([1970Kr05](#)); $0.17 \text{ } 3$ (original value of $0.16 \text{ } 3$ in [1971To13](#) adjusted by [1993Ru01](#)); and $0.60 \text{ } 12$ ([1993Ru01](#)). Evaluators prefer to recommend directly measured value of $0.60 \text{ } 12$ from [1993Ru01](#), rather than those from fission process.

[1993Ru01](#): measured $\% \beta^- \text{n}$, $T_{1/2}$ at Studsvik reactor facility.

Others: [1974KrZG](#), [1971To13](#), [1971ShZD](#), [1970Kr05](#), [1970De08](#), [1969ScZY](#), [1969WaZS](#), [1968To06](#): measurement of half-life of ^{87}Se decay and $\% \beta^- \text{n}$.