

²²⁶Ac α decay (29.37 h) 1987Mi10,1975VaZD

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, M. S. Basunia, Jun Chen et al. ,		NDS 192,315 (2023)	25-Sep-2023

Parent: ²²⁶Ac: E=0; J ^{π} =(1⁻); T_{1/2}=29.37 h 12; Q(α)=5506 8; % α decay=0.006 2

²²⁶Ac-J ^{π} : Three hyperfine-structure peaks in hyperfine spectrum Fig. 2 in 2019Ve07 suggest spin of 1. Measured magnetic moment of +1.06 5 is reasonably well reproduced by the empirical values deduced from additivity rule applied to the experimental magnetic moments of the ground states of ²²⁷Ac (J ^{π} =3/2⁻, dominant π 3/2[532]); ²²⁵Ac (J ^{π} =3/2⁻, mixed π 3/2[532] and π 3/2[651] configurations, as given in 2019Ve07); and ²²⁵Ra (J ^{π} =1/2⁺, dominant ν 1/2[631]) (2019Ve07), suggesting negative parity for the ground state of ²²⁶Ac.

²²⁶Ac-T_{1/2}: measured by 1987Mi10, α -decay curve for 14 different measurements. Other measurement: 29 h (quoted by 1950Me08 from a private communication from K. Street, Jr., unpublished data; also quoted in a book by 1964Hy02 from a private communication from 1952Sk82). 1964Hy02 and 1952Sk82 references not available to the evaluators.

²²⁶Ac-Q(α): From 2021Wa16.

²²⁶Ac-% α decay: Measured % α =0.006 2 (1975VaZD).

1987Mi10: ²²⁶Ac formed ²³²Th(γ ,X),E=40-150 MeV, using 40-80 μ g/cm² thick target and bremsstrahlung beam. Measured α -radiation using a solid-state detector, and deduced half-life of ²²⁶Ac decay.

1974Va28, 1975VaZD: ²²⁶Ac produced in Th(p,X),E(p)=600-MeV. Measured E γ , I γ , I α . 1975VaZD deduced α branching from β^- and ϵ branchings measured by 1974Va28.

1950Me08: ²²⁶Ac produced in Th(d,X),E(d)=60 MeV at the Berkeley 184-in cyclotron. ²²⁶Ac identified by α particle emission from ²²⁶Th daughter. Half-life of 29 h was quoted in this paper from a private communication with K. Street, Jr. See 1948Se40 (Table of Isotopes, p635) for firm identification of ²²⁶Ac as β^- parent of ²²⁶Th and reference to K. Street, R.A. James and G.T. Seaborg, unpublished data, July 1948. See also 2013Fr03 for the first identification of ²²⁶Ac isotope.

²²²Fr Levels

E(level)	J ^{π}	T _{1/2}	Comments
0	2 ⁻	14.2 min 3	J ^{π} ,T _{1/2} : from the Adopted Levels.

α radiations

E α	E(level)	I α [‡]	HF [†]	Comments
5399 5	0	100	58 20	E α : measurement by 1975VaZD. Other measurement: 1964Mc21. I α : only one α group has been observed, thus assumed 100%.

[†] The nuclear radius parameter r₀(²²²Fr)=1.53825 28 is deduced from interpolation (or unweighted average) of radius parameters of the adjacent even-even nuclides from 2020Si16.

[‡] For absolute intensity per 100 decays, multiply by 6 \times 10⁻⁵ 2.