

⁸³Y ε decay (2.85 min) 1976Li27

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 125, 201 (2015)	31-Dec-2014

Parent: ⁸³Y: E=62.04 10; J^π=3/2⁻; T_{1/2}=2.85 min 2; Q(ε)=4593 20; %ε+%β⁺ decay=60 5

1976Li27: ⁸³Y activity from proton spallation on a Mo target with E(p)=660 MeV followed by electromagnetic mass separation.

Measured E_γ, I_γ, γγ, and γ(t) using 2 coaxial Ge(Li) detectors and a low-energy Ge(Li) detector.

1973Si16: ⁸³Y activity from ⁸⁴Sr(p,2n) with E(p)=31 MeV followed by chemical separation. Measured E_γ, I_γ, γγ, γ(t) using two Ge(Li) detectors and a Ge(Li) x-ray detector, measured E_{ce}, I_{ce} using a cooled Si detector.

A total energy release of 2830 keV 210 is calculated for this decay scheme using the RADLST code, in general agreement with the effective Q value of 2790 keV 230.

Additional information 1.

α: Additional information 2.

⁸³Sr Levels

E(level) [†]	J ^π [‡]	T _{1/2} [‡]
0	7/2 ⁺	32.41 h 3
259.10 10	1/2 ⁻	4.95 s 12
680.9 3	(3/2 ⁻)	
753.60 22	(3/2 ⁻)	

[†] From a least-squares fit to E_γ, by evaluator.

[‡] From the Adopted Levels.

ε,β⁺ radiations

E(decay)	E(level)	Iβ ⁺ [†]	Iε [†]	Log f _t	I(ε+β ⁺) [†]	Comments
(3901 20)	753.60	7.4 13	0.55 10	5.65 10	7.9 14	av Eβ=1298.7 95; εK=0.0608 12; εL=0.00712 14; εM+=0.00155 3
(3974 20)	680.9	18 3	1.2 2	5.3 1	19 3	av Eβ=1332.9 95; εK=0.0567 11; εL=0.00663 13; εM+=0.00145 3
(4396 20)	259.10	32 7	1.5 3	5.33 10	33 7	av Eβ=1532.7 95; εK=0.0388 7; εL=0.00453 8; εM+=0.000988 17

[†] Absolute intensity per 100 decays.

γ(⁸³Sr)

I_γ normalization: from ΣI(γ+ce) to g.s.= 60 5 since β transition to g.s. is highly forbidden (ΔJ=2, Δπ=yes). The equilibrium intensity (I_γ=103 6) of the 259.1-keV γ has been corrected for the half-life of the 259 level.

E _γ [†]	I _γ ^{†#}	E _i (level)	J _i ^π	E _f	J _f ^π	Mult. [‡]	α	Comments
259.1 1	100 6	259.10	1/2 ⁻	0	7/2 ⁺	E3	0.1416	α(K)=0.1192 17; α(L)=0.0188 3; α(M)=0.00319 5; α(N)=0.000373 6 I _γ : equilibrium transition rate is I _γ =103 6. I _γ : other: 30 6 (1973Si16).
421.8 3	36 3	680.9	(3/2 ⁻)	259.10	1/2 ⁻			
494.5 2	15 2	753.60	(3/2 ⁻)	259.10	1/2 ⁻			

[†] From 1976Li27.

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$\gamma({}^{83}\text{Sr})$ (continued)

‡ From the Adopted Gammas.

For absolute intensity per 100 decays, multiply by 0.53 5.

^{83}Y ϵ decay (2.85 min) 1976Li27

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

Legend

- $I_{\gamma} < 2\% \times I_{\gamma}^{max}$
- $I_{\gamma} < 10\% \times I_{\gamma}^{max}$
- $I_{\gamma} > 10\% \times I_{\gamma}^{max}$

