

^{80}As β^- decay (15.2 s) 1971Mc17,1975Kr08,1972De43

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 105, 223 (2005)	22-Jun-2005

Parent: ^{80}As : $E=0.0$; $J^\pi=1^+$; $T_{1/2}=15.2$ s 2; $Q(\beta^-)=5601$ 23; $\% \beta^-$ decay=100.0
 1971Mc17 (also 1971McYH), 1975Kr08: measured γ , $\gamma\gamma$, $T_{1/2}$.

1972De43: measured γ , 8 γ rays reported.

Other measurements:

$\gamma,\gamma\gamma$: 1981LiZP (details of this study are unavailable).

β^- , $\beta\gamma$: 1977Al17, 1959Me68.

$T_{1/2}$ (^{80}As): 1959Me68, 1954Yt03, 1981Gi17.

Yield of ^{80}As in $^{238}\text{U}(d,F)$: 1991Le09.

Additional information 1.

 ^{80}Se Levels

E(level) [†]	J^π [‡]	E(level) [†]	J^π [‡]	E(level) [†]	J^π [‡]
0.0	0 ⁺	1873.3 3	(0) ⁺	2774.3 10	(1,2 ⁺)
666.14 18	2 ⁺	1960.0 3	2 ⁺	2836.3 10	(1,2 ⁺)
1448.97 25	2 ⁺	2311.1 3	(2 ⁺)	3024.0 6	(1 ⁺ ,2 ⁺)
1477.6 6	0 ⁺	2513.7 4	(2 ⁺)	3606.0 5	(2)
				3727.0 6	(0,1,2)

[†] From least-squares fit to $E\gamma$'s.

[‡] From 'Adopted Levels'.

 β^- radiations

E(decay) [†]	E(level)	$I\beta^-$ [‡] #	Log ft [‡]	Comments
(1874 23)	3727.0	0.12 6	6.1	av $E\beta=$ 640 60
(1995 23)	3606.0	0.17 6	6.1	av $E\beta=$ 700 60
(2577 23)	3024.0	0.96 20	5.8	av $E\beta=$ 970 60
(2765 23)	2836.3	0.25 8	6.6	av $E\beta=$ 1050 60
(2827 23)	2774.3	0.29 12	6.5	av $E\beta=$ 1080 60
(3087 23)	2513.7	1.4 2	6.0	av $E\beta=$ 1210 60
(3290 23)	2311.1	8.2 5	5.4	av $E\beta=$ 1300 60
(3641 23)	1960.0	1.4 2	6.4	av $E\beta=$ 1470 60
(3728 23)	1873.3	4.2 4	5.9	av $E\beta=$ 1510 60
(4123 23)	1477.6	0.33 12	7.2	av $E\beta=$ 1700 60
(4152 23)	1448.97	1.1 3	6.7	av $E\beta=$ 1720 60
4.70×10^3 18	666.14	26 3	5.7	av $E\beta=$ 2090 60
5.37×10^3 43	0.0	56 6	5.7	av $E\beta=$ 2420 60

E(decay): other: 6.0 MeV 2 (1959Me68).

$I\beta^-$: from β^- and $\beta(666\gamma)$ (1959Me68). Uncertainty of 10% assigned by the evaluator.

[†] From 1977Al17.

[‡] All values considered (by the evaluator) As approximate since In the present level scheme there is a gap of about 2 MeV between the $Q(\beta^-)$ value and the highest known level In ^{80}Se At 3727. There might Be additional unobserved transitions which could affect the quoted β feedings and associated log ft values, especially those for weakly fed levels.

Absolute intensity per 100 decays.

^{80}As β^- decay (15.2 s) 1971Mc17,1975Kr08,1972De43 (continued) $\gamma(^{80}\text{Se})$

I_γ normalization: from $I(\gamma+\text{ce})(\gamma's to g.s.)+ $I\beta$ (g.s.)=100, where $I\beta$ (g.s.)=56.6 (1959Me68).$

The following γ rays of energy (intensity) were reported by 1971Mc17 only as unknown (not assigned to ^{80}As or ^{82}As): 321.2.5 (13.3); 908.7.5 (1.7.3); 1422.7.5 (0.1.1); 1633.8.5 (2.8.5); 1968.8.5 (0.3.2); 2461.3.5 (0.5.3); 2598.1.5 (0.3.2). In a later study (1975Kr08) none of these γ rays has been reported in the decay of ^{80}As or ^{82}As .

E_γ^\dagger	I_γ^{\ddagger}	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
666.2.2	100	666.14	2 ⁺	0.0	0 ⁺	% I_γ =42.5
782.6.5	2.3.3	1448.97	2 ⁺	666.14	2 ⁺	E_γ, I_γ : values from 1972De43 not included in averaging.
811.5.5	0.6.3	1477.6	0 ⁺	666.14	2 ⁺	
861.6.4	1.9.2	2311.1	(2 ⁺)	1448.97	2 ⁺	
1064.7.5	0.3.1	2513.7	(2 ⁺)	1448.97	2 ⁺	E_γ, I_γ : reported by 1971Mc17 only.
1207.1.2	10.2.9	1873.3	(0) ⁺	666.14	2 ⁺	
1294.2.3	2.4.3	1960.0	2 ⁺	666.14	2 ⁺	
1415.9.5	0.2.1	3727.0	(0,1,2)	2311.1	(2 ⁺)	E_γ, I_γ : reported by 1971Mc17 only.
1448.8.3	2.7.4	1448.97	2 ⁺	0.0	0 ⁺	% I_γ =1.12.22
1645.2.3	17.9.11	2311.1	(2 ⁺)	666.14	2 ⁺	
1847.7.3	2.7.3	2513.7	(2 ⁺)	666.14	2 ⁺	E_γ : value of 1845.6.4 (1972De43) not included in averaging.
1959.7.3	1.1.2	1960.0	2 ⁺	0.0	0 ⁺	
2156.9.5	0.2.1	3606.0	(2)	1448.97	2 ⁺	
2357.8.5	2.1.4	3024.0	(1 ⁺ ,2 ⁺)	666.14	2 ⁺	
2514.0.5	0.4.2	2513.7	(2 ⁺)	0.0	0 ⁺	
2774.2.10	0.7.3	2774.3	(1,2 ⁺)	0.0	0 ⁺	
2836.2.10	0.6.2	2836.3	(1,2 ⁺)	0.0	0 ⁺	
2940.3.10	0.2.1	3606.0	(2)	666.14	2 ⁺	
3024.0.20	0.2.1	3024.0	(1 ⁺ ,2 ⁺)	0.0	0 ⁺	
3060.8.20	0.1.1	3727.0	(0,1,2)	666.14	2 ⁺	

[†] Weighted averages from 1971Mc17, 1975Kr08 and 1972De43 for γ rays below 2 MeV. Above this energy γ rays are reported by 1971Mc17 only.

[‡] For absolute intensity per 100 decays, multiply by 0.42.5.

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