

¹³³Sb β⁻ decay (2.34 min) 1974MeZQ,1980MeZQ

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov and A. Rodionov, F. G. Kondev		NDS 112, 855 (2011)	31-Oct-2010

Parent: ¹³³Sb: E=0.0; J^π=(7/2⁺); T_{1/2}=2.34 min 5; Q(β⁻)=4002 7; %β⁻ decay=100.0

Data are from 1974MeZQ, private communication of R. Meyer, as quoted by 1978LeZA, 1977MeZD, and 1980MeZQ. Other: 1973Er18.

The decay scheme is tentative. Intensity of unplaced γ transitions ≈25% of total γ-ray intensity.

¹³³Te Levels

E(level) [†]	J ^π [‡]	T _{1/2} [‡]	E(level) [†]	J ^π [‡]
0.0	(3/2 ⁺)	12.5 min 3	1705.51 9	(5/2 ⁺) [#]
308.242 11	(1/2 ⁺)		1728.66 4	(5/2 ⁺ ,7/2 ⁺)
334.27 3	(11/2 ⁻)	55.4 min 4	1913.46 7	(7/2 ⁻ ,9/2 ⁻)
1096.221 25	(7/2 ⁺ ,5/2 ⁻)		1976.46 8	(7/2 ⁺) [#]
1265.326 20	(5/2,7/2 ⁺)		2023.90 4	(5/2 ⁻ ,7/2,9/2 ⁻)
1421.33? 7	(5/2 ⁺)		2211.47 4	(7/2 ⁻ ,9/2 ⁻)
1500.57 6	(5/2 ⁻ ,7/2,9/2 ⁻)		2332.14 4	(5/2 ⁻ ,7/2)
1552.140 20	(5/2 ⁺) [#]		2750.32 4	(7/2 ⁻ ,9/2)
1639.50 4	(7/2 ⁻ ,9/2)		2755.52 4	(5/2 ⁺)
1641.52 3	(7/2 ⁺) [#]			

[†] From a least-squares fit to E_γ.

[‡] From Adopted Levels, except as noted.

[#] From 1980MeZQ.

β⁻ radiations

E(decay)	E(level)	Iβ ⁻ ^{†‡}	Log f _t [†]	Comments
1200 30	2755.52	20.5 19	4.71 5	av Eβ=449.2 30 E(decay): from 1970RuZR.
(1252 7)	2750.32	19.0 18	4.75 5	av Eβ=451.4 30
(1670 7)	2332.14	<0.26	>7.1	av Eβ=633.2 31
(1791 7)	2211.47	3.5 4	6.09 6	av Eβ=686.9 32
(1978 7)	2023.90	0.26 2	7.39 4	av Eβ=771.1 32
(2026 7)	1976.46	0.70 11	7.00 7	av Eβ=792.5 32
(2089 7)	1913.46	7.0 14	6.06 9	av Eβ=821.1 32
(2273 7)	1728.66	5.1 6	6.34 6	av Eβ=905.3 32
(2296 7)	1705.51	0.70 8	7.23 6	av Eβ=915.9 32
(2360 7)	1641.52	2.91 25	6.66 5	av Eβ=945.2 33
(2363 7)	1639.50	2.85 25	6.67 5	av Eβ=946.1 33
(2450 7)	1552.140	3.1 3	6.69 5	av Eβ=986.2 33
(2501 7)	1500.57	0.58 18	7.46 14	av Eβ=1009.9 33
(2581 7)	1421.33?	1.66 14	7.06 4	av Eβ=1046.5 33
(2737 7)	1265.326	2.1 4	7.06 9	av Eβ=1118.6 33
(2906 7)	1096.221	4.8 17	6.81 16	av Eβ=1197.1 33

[†] Values are tentative, because the level scheme is incomplete with ≈25% of the total γ-ray intensity missing.

[‡] Absolute intensity per 100 decays.

^{133}Sb β^- decay (2.34 min) **1974MeZQ,1980MeZQ (continued)** $\gamma(^{133}\text{Te})$ I γ normalization: from I γ (1096.2)= 32% 2 (1984Br31); Other: 35% 6 (1981Di01).

E_γ^\dagger	I_γ^{\ddagger}	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	$\alpha^\#$	Comments
^x 160.49 5	10.4 7							
^x 258.04 7	1.7 5							
^x 260.98 2	10 2							
^x 266.04 8	9 1							
^x 276.56 4	17 4							
^x 279.48 15	6 2							
^x 290.67 14	5 3							
308.242 @ 11	75 @ 3	308.242	(1/2 ⁺)	0.0	(3/2 ⁺)			
308.242 @ 11	25 @ 3	2332.14	(5/2 ⁻ ,7/2)	2023.90	(5/2 ⁻ ,7/2,9/2 ⁻)			
334.27 4		334.27	(11/2 ⁻)	0.0	(3/2 ⁺)	M4	1.41 2	E γ : 334.274 35 in 1979Bo26. Mult.: from adopted gammas.
^x 356.83 14	7 1							
^x 363.87 18	5 1							
^x 403.19 15	7 4							
404.36 6	53 2	1500.57	(5/2 ⁻ ,7/2,9/2 ⁻)	1096.221	(7/2 ⁺ ,5/2 ⁻)			
412.93 13	9 2	1913.46	(7/2 ⁻ ,9/2 ⁻)	1500.57	(5/2 ⁻ ,7/2,9/2 ⁻)			
^x 422.17 11	20 3							
423.40 3	82 4	2755.52	(5/2 ⁺)	2332.14	(5/2 ⁻ ,7/2)			
^x 440.96 8	15 3							
523.36 15	6 2	2023.90	(5/2 ⁻ ,7/2,9/2 ⁻)	1500.57	(5/2 ⁻ ,7/2,9/2 ⁻)			
^x 529.4 2	5 3							
538.76 4	44 5	2750.32	(7/2 ⁻ ,9/2)	2211.47	(7/2 ⁻ ,9/2 ⁻)			
^x 558.38 9	10 3							
^x 560.87 15	7 2							
572.3 2	4 1	2211.47	(7/2 ⁻ ,9/2 ⁻)	1639.50	(7/2 ⁻ ,9/2)			
^x 591.09 11	9 3							
632.42 3	90 6	1728.66	(5/2 ⁺ ,7/2 ⁺)	1096.221	(7/2 ⁺ ,5/2 ⁻)			
^x 679.6 2	14 4							
^x 687.47 4	38 5							
^x 691.08 3	65 4							
^x 808.93 7	23 3							
817.8 4	430 40	1913.46	(7/2 ⁻ ,9/2 ⁻)	1096.221	(7/2 ⁺ ,5/2 ⁻)			
836.88 7	258 10	2750.32	(7/2 ⁻ ,9/2)	1913.46	(7/2 ⁻ ,9/2 ⁻)			
^x 889.73 16	6 2							
927.67 8	27 5	2023.90	(5/2 ⁻ ,7/2,9/2 ⁻)	1096.221	(7/2 ⁺ ,5/2 ⁻)			
^x 936.34 8	20 5							
^x 939.6 3	7 4							
^x 964.1 2	8 2							
^x 987.17 4	50 4							
^x 1014.41 9	19 3							
1026.83 3	128 6	2755.52	(5/2 ⁺)	1728.66	(5/2 ⁺ ,7/2 ⁺)			
^x 1065.49 3	64 5							
^x 1079.67 10	12 3							
^x 1083.75 14	6 2							
^x 1088.19 11	13 2							
1096.22 3	1000 30	1096.221	(7/2 ⁺ ,5/2 ⁻)	0.0	(3/2 ⁺)			
1110.82 5	41 2	2750.32	(7/2 ⁻ ,9/2)	1639.50	(7/2 ⁻ ,9/2)			
1113.08 7	45 2	1421.33?	(5/2 ⁺)	308.242	(1/2 ⁺)			
1115.18 3	112 5	2211.47	(7/2 ⁻ ,9/2 ⁻)	1096.221	(7/2 ⁺ ,5/2 ⁻)			
^x 1180.28 18	18 3							

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^{133}Sb β^- decay (2.34 min) **1974MeZQ,1980MeZQ** (continued)

$\gamma(^{133}\text{Te})$ (continued)

E_γ^\dagger	$I_\gamma^{\ddagger\#}$	$E_i(\text{level})$	J_i^π	E_f	J_f^π
$^{x}1183.47$ 3	75 5				
$^{x}1202.77$ 5	25 3				
$^{x}1218.66$ 4	42 3				
1235.98 5	49 5	2332.14	(5/2 ⁻ ,7/2)	1096.221	(7/2 ⁺ ,5/2 ⁻)
1249.77 12	20 4	2750.32	(7/2 ⁻ ,9/2)	1500.57	(5/2 ⁻ ,7/2,9/2 ⁻)
1265.32 2	127 8	1265.326	(5/2,7/2 ⁺)	0.0	(3/2 ⁺)
$^{x}1271.55$ 2	98 6				
$^{x}1293.5$ 3	5 2				
$^{x}1300.02$ 11	18 3				
1305.23 2	134 5	1639.50	(7/2 ⁻ ,9/2)	334.27	(11/2 ⁻)
$^{x}1309.68$ 9	16 3				
$^{x}1344.1$ 3	6 2				
$^{x}1354.3$ 2	6 2				
$^{x}1393.61$ 11	13 2				
$^{x}1410.06$ 16	10 2				
$^{x}1419.2$ 4	6 2				
1421.3 2	7 2	1421.33?	(5/2 ⁺)	0.0	(3/2 ⁺)
$^{x}1425.17$ 13	11 3				
$^{x}1443.3$ 3	4 2				
$^{x}1484.35$ 5	30 2				
1490.14	60 4	2755.52	(5/2 ⁺)	1265.326	(5/2,7/2 ⁺)
$^{x}1496.56$ 5	25 3				
$^{x}1529.13$ 11	16 3				
1552.13 2	97 5	1552.140	(5/2 ⁺)	0.0	(3/2 ⁺)
$^{x}1558.67$ 11	11 3				
1579.15 16	38 7	1913.46	(7/2 ⁻ ,9/2 ⁻)	334.27	(11/2 ⁻)
$^{x}1580.9$ 4	20 7				
1641.51 3	91 5	1641.52	(7/2 ⁺)	0.0	(3/2 ⁺)
1654.23 5	37 3	2750.32	(7/2 ⁻ ,9/2)	1096.221	(7/2 ⁺ ,5/2 ⁻)
1659.26	52 3	2755.52	(5/2 ⁺)	1096.221	(7/2 ⁺ ,5/2 ⁻)
$^{x}1697.96$ 5	30 3				
1705.50 9	22 2	1705.51	(5/2 ⁺)	0.0	(3/2 ⁺)
1728.59 7	197 13	1728.66	(5/2 ⁺ ,7/2 ⁺)	0.0	(3/2 ⁺)
$^{x}1775.79$ 6	27 4				
$^{x}1794.9$ 4	4 1				
1877.19 5	36 3	2211.47	(7/2 ⁻ ,9/2 ⁻)	334.27	(11/2 ⁻)
$^{x}1886.9$ 3	5 2				
$^{x}1896.7$ 3	12 4				
$^{x}1904.6$ 2	12 4				
$^{x}1931.0$ 5	3 2				
$^{x}1933.0$ 8	≈1				
$^{x}1934.2$ 5	3 2				
$^{x}1944.10$ 6	53 3				
$^{x}1946.45$ 16	17 3				
1976.44 8	22 3	1976.46	(7/2 ⁺)	0.0	(3/2 ⁺)
$^{x}1992.0$ 2	7 2				
$^{x}2018.45$ 16	7 2				
2416.2 8	195 40	2750.32	(7/2 ⁻ ,9/2)	334.27	(11/2 ⁻)
2447 1	30 3	2755.52	(5/2 ⁺)	308.242	(1/2 ⁺)
2755 1	290 40	2755.52	(5/2 ⁺)	0.0	(3/2 ⁺)

† From 1974MeZQ, unless otherwise specified.

‡ For absolute intensity per 100 decays, multiply by 0.032 2.

Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation

Continued on next page (footnotes at end of table)

^{133}Sb β^- decay (2.34 min) 1974MeZQ,1980MeZQ (continued)

$\gamma(^{133}\text{Te})$ (continued)

based on γ -ray energies, assigned multiplicities, and mixing ratios, unless otherwise specified.

@ Multiply placed with intensity suitably divided.

^x γ ray not placed in level scheme.

^{133}Sb β^- decay (2.34 min) 1974MeZQ,1980MeZQ

Decay Scheme

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided

Legend

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

