## $^{117}$Te $\beta^+$ decay    **1967Be46**

|  | History | | |
| --- | --- | --- | --- |
| Type | Author | Citation | Literature Cutoff Date |
| Full Evaluation | Jean Blachot | ENSDF | 1-Mar-2009 |

Parent: $^{117}$Te: E=0.0; $J^\pi$=1/2$^+$; $T_{1/2}$=62 min *2*; Q($\beta^+$)=3549 *16*; %$\beta^+$ decay=100.0

Measured: $\gamma,\gamma\gamma$ (1967Be46). Others: 1972Bu41, 1965Bu08, 1964Va26.

$\alpha$: Additional information 1.

### $^{117}$Sb Levels

| E(level) | $J^{\pi\,\dagger}$ | $T_{1/2}$ |
| --- | --- | --- |
| 0.0 | 5/2$^+$ | 2.80 h *1* |
| 719.7 | 1/2$^+$ | |
| 923.9 | 3/2$^+$ | |
| 1354.6 | (1/2,3/2) | |
| 1454.8 | | |
| 1716.5 | 1/2$^+$,3/2$^+$ | |
| 1810.6 | 1/2$^+$,3/2$^+$ | |
| 2213.? | 3/2$^+$,5/2$^+$ | |
| 2285 | 1/2$^+$ | |
| 2300.0 | 1/2$^+$,3/2$^+$ | |

$^\dagger$ From Adopted Levels.

### $\varepsilon,\beta^+$ radiations

($\beta^+$)(719$\gamma$) coin: E$\beta$=1750 *30* (1967Be46).

| E(decay) | E(level) | $I\beta^{+\,\dagger}$ | $I\varepsilon^\dagger$ | Log $ft$ | $I(\varepsilon+\beta^+)^\dagger$ | Comments |
| --- | --- | --- | --- | --- | --- | --- |
| (1249 *16*) | 2300.0 | 0.0044 *16* | 11.4 *12* | 5.18 *5* | 11.4 *12* | av E$\beta$=110.6 *72*; $\varepsilon$K=0.8556; $\varepsilon$L=0.11424 *7*; $\varepsilon$M+=0.02982 *2* |
| (1264 *16*) | 2285 | 0.0016 *6* | 3.2 *4* | 5.74 *6* | 3.2 *4* | av E$\beta$=117.3 *72*; $\varepsilon$K=0.8555; $\varepsilon$L=0.11418 *7*; $\varepsilon$M+=0.02980 *2* |
| (1336$^\ddagger$ *16*) | 2213.? | 0.0005 *3* | 0.3 *2* | 6.8 *3* | 0.3 *2* | av E$\beta$=149.1 *72*; $\varepsilon$K=0.8549 *3*; $\varepsilon$L=0.11384 *9*; $\varepsilon$M+=0.02970 *3* |
| (1738 *16*) | 1810.6 | 0.30 *4* | 8.0 *8* | 5.63 *5* | 8.3 *8* | av E$\beta$=324.4 *70*; $\varepsilon$K=0.8259 *25*; $\varepsilon$L=0.1090 *4*; $\varepsilon$M+=0.02839 *10*<br>I($\varepsilon+\beta^+$): <4.7% according to 1972Bu41. |
| (1833 *16*) | 1716.5 | 1.07 *12* | 18.1 *17* | 5.32 *5* | 19.2 *18* | av E$\beta$=365.4 *70*; $\varepsilon$K=0.810 *4*; $\varepsilon$L=0.1067 *5*; $\varepsilon$M+=0.02778 *12* |
| (2094 *16*) | 1454.8 | 0.04 *3* | 0.3 *2* | 7.3 *3* | 0.3 *2* | av E$\beta$=480.3 *71*; $\varepsilon$K=0.742 *5*; $\varepsilon$L=0.0974 *7*; $\varepsilon$M+=0.02537 *18* |
| (2194 *16*) | 1354.6 | 0.1 *1* | 0.7 *2* | 6.91 *17* | 0.8 *3* | av E$\beta$=524.6 *71*; $\varepsilon$K=0.709 *6*; $\varepsilon$L=0.0929 *8*; $\varepsilon$M+=0.02419 *20* |
| (2625 *16*) | 923.9 | 1.6 *3* | 2.7 *4* | 6.46 *8* | 4.3 *7* | av E$\beta$=717.0 *72*; $\varepsilon$K=0.541 *7*; $\varepsilon$L=0.0707 *9*; $\varepsilon$M+=0.01840 *22* |
| (2829 *16*) | 719.7 | 24.1 *8* | 28.2 *8* | 5.508 *21* | 52.3 *14* | av E$\beta$=809.3 *73*; $\varepsilon$K=0.462 *6*; $\varepsilon$L=0.0603 *8*; $\varepsilon$M+=0.01568 *21*<br>Activity: from E$\beta$+=1810 *20* (1962Kh05), 1740 *60* (1961Fi05). Measured: from $\beta^+$/($\varepsilon+\beta^+$)=0.31 *4* (1962Kh05), $\varepsilon$/$\beta^+$=2.3 (1961Fi05). |

$^\dagger$ Absolute intensity per 100 decays.

$^\ddagger$ Existence of this branch is questionable.

## $^{117}$Te $\beta^+$ decay    1967Be46 (continued)

### $\gamma(^{117}\text{Sb})$

I$\gamma$ normalization: from $\Sigma$ Ti(g.s.)=100, assuming no $\beta$+ branch to g.s. ($\Delta$J=2).

| $E_\gamma$ | $I_\gamma{}^\ddagger$ | $E_i$(level) | $J_i^\pi$ | $E_f$ | $J_f^\pi$ | Mult. | $\alpha$ | Comments |
|---|---|---|---|---|---|---|---|---|
| 568.8 *15* | 1.0 *2* | 2285 | 1/2$^+$ | 1716.5 | 1/2$^+$,3/2$^+$ | | | |
| 634.5 *15* | 0.7 *2* | 1354.6 | (1/2,3/2) | 719.7 | 1/2$^+$ | | | |
| 719.7 *7* | 100 | 719.7 | 1/2$^+$ | 0.0 | 5/2$^+$ | E2 | 0.00295 *5* | $\alpha$(K)=0.00254 *4*; $\alpha$(L)=0.000328 *5*; |
| | | | | | | | | $\alpha$(M)=6.49×10$^{-5}$ *10*; |
| | | | | | | | | $\alpha$(N)=1.246×10$^{-5}$ *18* |
| | | | | | | | | $\alpha$(O)=1.203×10$^{-6}$ *18*; |
| | | | | | | | | $\alpha$(N+..)=1.366×10$^{-5}$ *20* |
| | | | | | | | | $\alpha$: ce(K)/I$\beta$=6.2×10$^{-3}$ *4* (1962Kh05). |
| 831.0 *15* | 0.8 *2* | 2285 | 1/2$^+$ | 1454.8 | | | | |
| 886.7 *7* | 2.3 *3* | 1810.6 | 1/2$^+$,3/2$^+$ | 923.9 | 3/2$^+$ | | | |
| 923.9 *7* | 9.6 *10* | 923.9 | 3/2$^+$ | 0.0 | 5/2$^+$ | | | |
| 930.2 *15* | 0.3 *2* | 2285 | 1/2$^+$ | 1354.6 | (1/2,3/2) | | | |
| 996.7$^\dagger$ *7* | 6.1 *6* | 1716.5 | 1/2$^+$,3/2$^+$ | 719.7 | 1/2$^+$ | | | |
| 1090.7 *7* | 10.6 *11* | 1810.6 | 1/2$^+$,3/2$^+$ | 719.7 | 1/2$^+$ | | | |
| 1354.5 *15* | 0.8 *2* | 1354.6 | (1/2,3/2) | 0.0 | 5/2$^+$ | | | |
| 1360.5 *15* | 0.7 *2* | 2285 | 1/2$^+$ | 923.9 | 3/2$^+$ | | | |
| 1454.5 *15* | 1.3 *2* | 1454.8 | | 0.0 | 5/2$^+$ | | | |
| 1565.1 *15* | 1.5 *2* | 2285 | 1/2$^+$ | 719.7 | 1/2$^+$ | | | |
| 1580.5 *15* | 0.3 *2* | 2300.0 | 1/2$^+$,3/2$^+$ | 719.7 | 1/2$^+$ | | | |
| $^x$1595.3$^\#$ *15* | ≈0.3 | | | | | | | |
| 1716.4 *7* | 24.5 *25* | 1716.5 | 1/2$^+$,3/2$^+$ | 0.0 | 5/2$^+$ | | | |
| 2213.0$^\#$ *15* | 0.5 *2* | 2213.? | 3/2$^+$,5/2$^+$ | 0.0 | 5/2$^+$ | | | |
| 2284.8 *15* | 0.6 *2* | 2285 | 1/2$^+$ | 0.0 | 5/2$^+$ | | | |
| 2300.0 *7* | 17.3 *18* | 2300.0 | 1/2$^+$,3/2$^+$ | 0.0 | 5/2$^+$ | | | |
| $^x$2379.3$^\#$ *15* | ≈0.2 | | | | | | | |
| $^x$2885.0$^\#$ *15* | ≈0.1 | | | | | | | |

$^\dagger$ Possible multiplet according to 1972Bu41.
$^\ddagger$ For absolute intensity per 100 decays, multiply by 0.647 *14*.
$^\#$ Placement of transition in the level scheme is uncertain.
$^x$ $\gamma$ ray not placed in level scheme.

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### Decay Scheme

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

Legend

- → $I_\gamma < 2\% \times I_\gamma^{max}$
- → $I_\gamma < 10\% \times I_\gamma^{max}$
- → $I_\gamma > 10\% \times I_\gamma^{max}$
- ⇢ $\gamma$ Decay (Uncertain)

$\%\varepsilon + \%\beta^+ = 100$

1/2$^+$　　0.0　　62 min $2$

$Q_\varepsilon = 3549\ 16$

$^{117}_{52}Te_{65}$



| | | $I\beta^+$ | I$\varepsilon$ | Log $ft$ |
|---|---|---|---|---|
| 1/2$^+$,3/2$^+$ | 2300.0 | 0.0044 | 11.4 | 5.18 |
| 1/2$^+$ | 2285 | 0.0016 | 3.2 | 5.74 |
| 3/2$^+$,5/2$^+$ | 2213. | 0.0005 | 0.3 | 6.8 |
| 1/2$^+$,3/2$^+$ | 1810.6 | 0.30 | 8.0 | 5.63 |
| 1/2$^+$,3/2$^+$ | 1716.5 | 1.07 | 18.1 | 5.32 |
| | 1454.8 | 0.04 | 0.3 | 7.3 |
| (1/2,3/2) | 1354.6 | 0.1 | 0.7 | 6.91 |
| 3/2$^+$ | 923.9 | 1.6 | 2.7 | 6.46 |
| 1/2$^+$ | 719.7 | 24.1 | 28.2 | 5.508 |
| 5/2$^+$ | 0.0 | | | 2.80 h $1$ |

$^{117}_{51}Sb_{66}$

Gamma labels:
2300.0 11.2; 1580.5 0.26; 2284.8 0.45; 1565.1 1.04; 1360.5 0.52; 930.2 0.26; 831.0 0.58; 568.8 0.71; 2213.0 0.39; 1090.7 6.9; 886.7 1.49; 1716.4 15.9; 996.7 3.9; 1454.5 0.91; 1354.5 0.58; 634.5 0.52; 923.9 6.2; 719.7 E2 64.9