# $^{206}_{80}\mathrm{Hg}_{126}$

## 1 Decay Scheme

Hg-206 disintegrates by 100% beta minus decay to Tl-206, 62(7) % to the ground state, and by 35(7) % and 3.0(4) % to the 304.9 keV and 649.4 keV levels, respectively.
*Le mercure 206 se désintègre par émission bêta moins vers les niveaux excités de 304,9 keV et 649,4 keV et le niveau fondamental du thallium 206.*

## 2 Nuclear Data

$T_{1/2}(^{206}\mathrm{Hg}\ )$ : 8,32 (7) min
$Q^{-}(^{206}\mathrm{Hg}\ )$ : 1308 (20) keV

### 2.1 $\beta^-$ Transitions

| | Energy keV | Probability × 100 | Nature | lg $ft$ |
|---|---|---|---|---|
| $\beta^-_{0,3}$ | 659 (20) | 3,0 (4) | 1st forbidden non-unique | 5,41 |
| $\beta^-_{0,2}$ | 1003 (20) | 35 (7) | 1st forbidden non-unique | 5,24 |
| $\beta^-_{0,0}$ | 1308 (20) | 62 (7) | 1st forbidden non-unique | 5,67 |

### 2.2 Gamma Transitions and Internal Conversion Coefficients

| | Energy keV | $P_{\gamma+ce}$ × 100 | Multipolarity | $\alpha_K$ | $\alpha_L$ | $\alpha_M$ | $\alpha_T$ |
|---|---|---|---|---|---|---|---|
| $\gamma_{1,0}$(Tl) | 265,832 (5) | 0,014 (7) | E2 | 0,0855 (12) | 0,0561 (8) | 0,01440 (21) | 0,1603 (23) |
| $\gamma_{2,0}$(Tl) | 304,896 (6) | 36 (7) | M1 | 0,308 (5) | 0,0519 (8) | 0,01211 (17) | 0,375 (6) |
| $\gamma_{3,2}$(Tl) | 344,52 (17) | 0,70 (14) | M1 | 0,221 (4) | 0,0371 (6) | 0,00866 (13) | 0,269 (4) |
| $\gamma_{3,1}$(Tl) | 383,59 (6) | 0,014 (7) | M1 ( + E2) | 0,10 (7) | 0,021 (7) | 0,0050 (15) | 0,13 (8) |
| $\gamma_{3,0}$(Tl) | 649,42 (5) | 2,3 (3) | M1 | 0,0412 (6) | 0,00681 (10) | 0,001585 (23) | 0,0501 (7) |

# 3 Atomic Data

## 3.1 Tl

$\omega_K$ : 0,963 (4)
$\bar{\omega}_L$ : 0,367 (15)
$n_{KL}$ : 0,812 (5)

### 3.1.1 X Radiations

| | | Energy keV | | Relative probability |
|---|---|---|---|---|
| $X_K$ | | | | |
| | $K\alpha_2$ | 70,8325 | | 59,24 |
| | $K\alpha_1$ | 72,8725 | | 100 |
| | $K\beta_3$ | 82,118 | } | |
| | $K\beta_1$ | 82,577 | } | |
| | $K\beta_5''$ | 83,115 | } | 34 |
| | $K\beta_2$ | 84,838 | } | |
| | $K\beta_4$ | 85,134 | } | 10,1 |
| | $KO_{2,3}$ | 85,444 | } | |
| $X_L$ | | | | |
| | $L\ell$ | 8,9531 | | |
| | $L\alpha$ | 10,1718 – 10,2679 | | |
| | $L\eta$ | 10,9942 | | |
| | $L\beta$ | 11,8117 – 12,9566 | | |
| | $L\gamma$ | 13,8528 – 14,7362 | | |

### 3.1.2 Auger Electrons

| | Energy keV | Relative probability |
|---|---|---|
| Auger K | | |
| KLL | 54,587 – 59,954 | 100 |
| KLX | 66,37 – 72,86 | 55,4 |
| KXY | 78,12 – 85,50 | 7,67 |
| Auger L | 5,25 – 15,32 | |

## 4 Electron Emissions

| | | Energy keV | Electrons per 100 disint. |
|---|---|---|---|
| $e_{AL}$ | (Tl) | 5,25 - 15,32 | 5,1 (4) |
| $e_{AK}$ | (Tl) | | 0,30 (7) |
| | KLL | 54,587 - 59,954 | } |
| | KLX | 66,37 - 72,86 | } |
| | KXY | 78,12 - 85,50 | } |
| $ec_{2,0\ K}$ | (Tl) | 219,366 (6) | 8,0 (15) |
| $ec_{3,2\ K}$ | (Tl) | 258,99 (17) | 0,122 (24) |
| $ec_{2,0\ L}$ | (Tl) | 289,549 - 292,238 | 1,35 (26) |
| $ec_{2,0\ M}$ | (Tl) | 301,192 - 302,507 | 0,31 (6) |
| $ec_{2,0\ N}$ | (Tl) | 304,050 - 304,777 | 0,080 (15) |
| $ec_{3,0\ K}$ | (Tl) | 563,89 (5) | 0,0906 (18) |
| $\beta^-_{0,3}$ | max: | 659 (20) | 3,0 (4) |
| $\beta^-_{0,3}$ | avg: | 203 (7) | |
| $\beta^-_{0,2}$ | max: | 1003 (20) | 35 (7) |
| $\beta^-_{0,2}$ | avg: | 330 (8) | |
| $\beta^-_{0,0}$ | max: | 1308 (20) | 62 (7) |
| $\beta^-_{0,0}$ | avg: | 450 (8) | |

# 5 Photon Emissions

## 5.1 X-Ray Emissions

| | | Energy keV | | Photons per 100 disint. | |
|---|---|---|---|---|---|
| XL | (Tl) | 8,9531 — 14,7362 | | 2,9 (4) | |
| XK$\alpha_2$ | (Tl) | 70,8325 | | 2,3 (5) | } K$\alpha$ |
| XK$\alpha_1$ | (Tl) | 72,8725 | | 3,9 (8) | } |
| XK$\beta_3$ | (Tl) | 82,118 | } | | |
| XK$\beta_1$ | (Tl) | 82,577 | } | 1,32 (25) | K$'\beta_1$ |
| XK$\beta''_5$ | (Tl) | 83,115 | } | | |
| XK$\beta_2$ | (Tl) | 84,838 | } | | |
| XK$\beta_4$ | (Tl) | 85,134 | } | 0,39 (8) | K$'\beta_2$ |
| XKO$_{2,3}$ | (Tl) | 85,444 | } | | |

## 5.2 Gamma Emissions

| | Energy keV | Photons per 100 disint. |
|---|---|---|
| $\gamma_{1,0}$(Tl) | 265,832 (5) | 0,012 (6) |
| $\gamma_{2,0}$(Tl) | 304,896 (6) | 26 (5) |
| $\gamma_{3,2}$(Tl) | 344,52 (17) | 0,55 (11) |
| $\gamma_{3,1}$(Tl) | 383,59 (6) | 0,012 (6) |
| $\gamma_{3,0}$(Tl) | 649,42 (5) | 2,2 (3) |

# 6 Main Production Modes

Pb − 210($\alpha$)Hg − 206
Hg − 204(t,p)Hg − 206
Pb − 208(p,3p)Hg − 206

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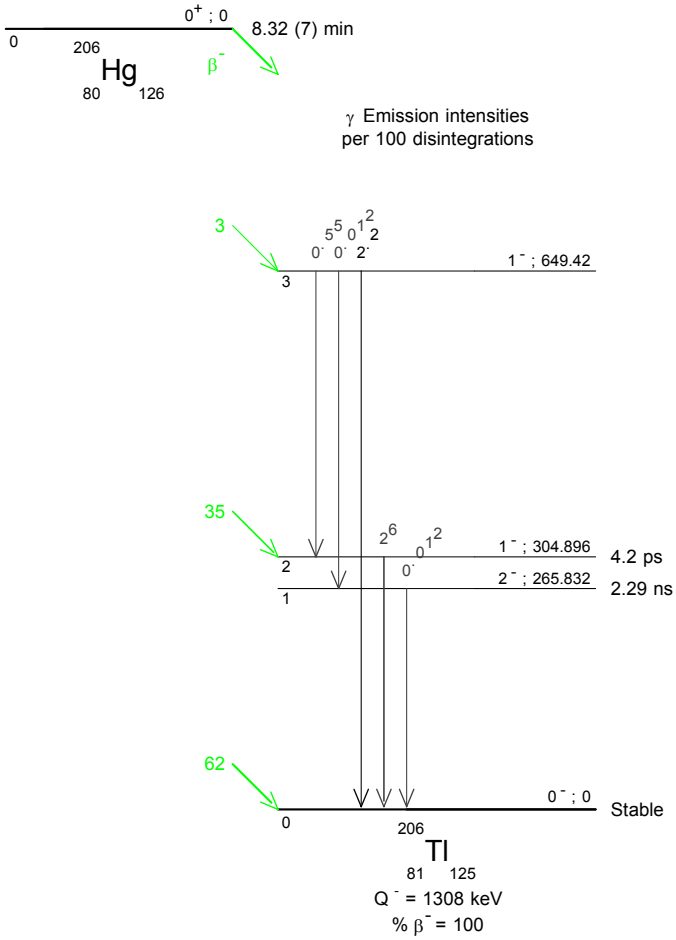
0+ ; 0
8.32 (7) min
0
206
Hg
80
126
β-
γ Emission intensities
per 100 disintegrations
3
5 5 0 1 2
0- 0- 2-
1- ; 649.42
3
35
2 6 0 1 2
0-
1- ; 304.896
4.2 ps
2
2- ; 265.832
2.29 ns
1
62
0- ; 0
Stable
0
206
Tl
81
125
Q- = 1308 keV
% β- = 100