



1 Decay Scheme

Tl-207 decays 100% by beta minus emission to the ground state and two excited levels in Pb-207.

Le thallium 207 se désintègre par émission bêta moins vers deux niveaux excités et le niveau fondamental du plomb 207.

2 Nuclear Data

$$T_{1/2}(^{207}\text{Tl}) : 4,774 \quad (12) \quad \text{min}$$

$$Q^-(^{207}\text{Tl}) : 1418 \quad (5) \quad \text{keV}$$

2.1 β^- Transitions

	Energy keV	Probability $\times 100$	Nature	lg ft
$\beta_{0,2}^-$	520 (5)	0,271 (10)	1st forbidden non-unique	6,15
$\beta_{0,1}^-$	848 (5)	< 0,00008	1st forbidden unique	> 10,8
$\beta_{0,0}^-$	1418 (5)	99,729 (10)	1st forbidden non-unique	5,11

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ $\times 100$	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{2,1}(\text{Pb})$	328,10 (12)	0,00189 (19)	[M1]	0,273 (4)	0,0466 (7)	0,01090 (16)	0,334 (5)
$\gamma_{1,0}(\text{Pb})$	569,698 (2)	0,00189 (19)	E2	0,01584 (23)	0,00439 (7)	0,001081 (16)	0,0216 (3)
$\gamma_{2,0}(\text{Pb})$	897,77 (12)	0,269 (9)	M1 + 0,8% E2	0,0192 (3)	0,00318 (5)	0,000741 (11)	0,0233 (4)

3 Atomic Data

3.1 Pb

$$\begin{aligned}\omega_K &: 0,963 & (4) \\ \bar{\omega}_L &: 0,379 & (15) \\ n_{KL} &: 0,811 & (5)\end{aligned}$$

4 Electron Emissions

		Energy keV		Electrons per 100 disint.
e _{AL}	(Pb)	5,33	- 15,82	0,00333 (6)
e _{AK}	(Pb)			0,000202 (23)
	KLL	56,028	- 61,669	}
	KLX	68,181	- 74,969	}
	KXY	80,3	- 88,0	}
$\beta_{0,2}^-$	max:	520	(5)	0,271 (10)
$\beta_{0,2}^-$	avg:	155,0	(17)	
$\beta_{0,1}^-$	max:	848	(5)	< 0,00008
$\beta_{0,1}^-$	avg:	273,2	(18)	
$\beta_{0,0}^-$	max:	1418	(5)	99,729 (10)
$\beta_{0,0}^-$	avg:	492,5	(21)	

5 Photon Emissions

5.1 X-Ray Emissions

		Energy keV		Photons per 100 disint.
XL	(Pb)	9,186	— 15,217	0,00201 (6)
XK α_2	(Pb)	72,805		0,00154 (6) } K α
XK α_1	(Pb)	74,97		0,00258 (10) }
XK β_3	(Pb)	84,451	}	
XK β_1	(Pb)	84,937	}	0,00088 (4) K' β_1
XK β_5''	(Pb)	85,47	}	
XK β_2	(Pb)	87,238	}	
XK β_4	(Pb)	87,58	}	0,000266 (12) K' β_2
XK $\alpha_{2,3}$	(Pb)	87,911	}	

5.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{2,1}(\text{Pb})$	328,10 (12)	0,00142 (14)
$\gamma_{1,0}(\text{Pb})$	569,698 (2)	0,00185 (19)
$\gamma_{2,0}(\text{Pb})$	897,77 (12)	0,263 (9)

6 Main Production Modes

Bi – 211(α)Tl – 207

7 References

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