



1 Decay Scheme

Po-216 decays 100% by alpha-particle emission to the ground and first excited states of Pb-212.
Le polonium 216 se désintègre par émissions alpha, essentiellement vers le niveau fondamental du plomb 212.

2 Nuclear Data

$T_{1/2}({}^{216}\text{Po})$: 0,148 (4) s
 $T_{1/2}({}^{212}\text{Pb})$: 10,64 (1) h
 $Q^\alpha({}^{216}\text{Po})$: 6906,3 (5) keV

2.1 α Transitions

	Energy keV	Probability × 100	F
$\alpha_{0,1}$	6101,4 (7)	0,0019 (3)	35
$\alpha_{0,0}$	6906,3 (5)	99,9981 (3)	1

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ × 100	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{1,0}(\text{Pb})$	804,9 (5)	0,0019 (3)	[E2]	0,00799 (12)	0,001732 (25)	0,000417 (6)	0,01027 (15)

3 Atomic Data

3.1 Pb

- ω_K : 0,963 (4)
- $\bar{\omega}_L$: 0,379 (15)
- n_{KL} : 0,811 (5)

3.1.1 X Radiations

		Energy keV	Relative probability	
X _K	K α_2	72,8049		59,7
	K α_1	74,97		100
	K β_3	84,451	}	33,3
	K β_1	84,937	}	
	K β_5''	85,47	}	
	K β_2	87,238	}	10,3
	K β_4	87,58	}	
	KO _{2,3}	87,911	}	
	X _L			
L ℓ	9,184			
L α	10,45 – 10,551			
L η	11,349			
L β	12,142 – 13,015			
L γ	14,765 – 15,216			

3.1.2 Auger Electrons

		Energy keV	Relative probability
Auger K			
	KLL	56,03 – 61,67	100
	KLX	68,18 – 74,97	55,9
	KXY	80,3 – 88,0	7,9
Auger L		5,26 – 10,40	2850

4 α Emissions

	Energy keV	Probability $\times 100$
$\alpha_{0,1}$	5988,4 (7)	0,0019 (3)
$\alpha_{0,0}$	6778,4 (5)	99,9981 (3)

5 Electron Emissions

		Energy keV	Electrons per 100 disint.
e _{AL}	(Pb)	5,26 - 10,40	0,0000097 (10)
e _{AK}	(Pb)		0,00000056 (11)
	KLL	56,03 - 61,67	}
	KLX	68,18 - 74,97	}
	KXY	80,3 - 88,0	}

6 Photon Emissions

6.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.	
XL	(Pb)	9,184 — 15,216	0,0000059 (6)	
XK α_2	(Pb)	72,8049	0,0000043 (7)	} K α
XK α_1	(Pb)	74,97	0,0000072 (12)	
XK β_3	(Pb)	84,451	}	
XK β_1	(Pb)	84,937	}	} K' β_1
XK β_5''	(Pb)	85,47	}	
XK β_2	(Pb)	87,238	}	
XK β_4	(Pb)	87,58	}	} K' β_2
XKO _{2,3}	(Pb)	87,911	}	

6.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{1,0}(\text{Pb})$	804,9 (5)	0,0019 (3)

7 Main Production Modes

Bi – 216(β^- ,)Po – 216

Th – 228 decay chain (Th – 228(α)Ra – 224(α)Rn – 220(α)Po – 216)

8 References

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