



1 Decay Scheme

Pb-212 disintegrates by beta minus emission to excited and fundamental levels of Bi-212.

Le plomb 212 se désintègre par émission bêta moins vers des niveaux excités et fondamental du bismuth 212.

2 Nuclear Data

$T_{1/2}(^{212}\text{Pb})$:	10,64	(1)	h
$T_{1/2}(^{212}\text{Bi})$:	60,54	(6)	min
$Q^-(^{212}\text{Pb})$:	574	(2)	keV

2.1 β^- Transitions

	Energy keV	Probability $\times 100$	Nature	lg ft
$\beta_{0,3}^-$	159 (2)	5,1 (2)	1st Forbidden	5,38
$\beta_{0,2}^-$	335 (2)	84,0 (14)	1st Forbidden	5,19
$\beta_{0,0}^-$	574 (2)	10,9 (14)	1st Forbidden	6,84

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ $\times 100$	Multipolarity	α_K	α_L	α_{M+}	α_T
$\gamma_{1,0}(\text{Bi})$	115,183 (5)	5,12 (21)	[M1]	5,87 (18)	1,027 (30)	0,323 (10)	7,22 (22)
$\gamma_{2,1}(\text{Bi})$	123,45 (1)	0,37 (1)	[E2]	0,418 (8)	1,802 (36)	0,630 (13)	2,85 (6)
$\gamma_{3,2}(\text{Bi})$	176,64 (1)	0,16 (2)	[M1]	1,742 (50)	0,303 (10)	0,095 (3)	2,14 (6)
$\gamma_{2,0}(\text{Bi})$	238,632 (2)	83,8 (11)	[M1]	0,753 (23)	0,130 (4)	0,040 (1)	0,923 (30)
$\gamma_{3,1}(\text{Bi})$	300,09 (1)	4,74 (20)	[M1]	0,401 (12)	0,069 (2)	0,0210 (6)	0,491 (15)
$\gamma_{3,0}(\text{Bi})$	415,27 (1)	0,17 (3)	[M1]	0,167 (5)	0,028 (1)	0,0090 (3)	0,204 (6)

3 Atomic Data

3.1 Bi

ω_K : 0,964 (4)
 $\bar{\omega}_L$: 0,391 (16)
 n_{KL} : 0,809 (5)

3.1.1 X Radiations

		Energy keV	Relative probability	
X _K	K α_2	74,8157		59,8
	K α_1	77,1088		100
	K β_3	86,835	}	34,2
	K β_1	87,344	}	
	K β_5''	87,862	}	
	K β_2	89,91	}	10,4
	K β_4	90,074	}	
	KO _{2,3}	90,421	}	
	X _L	L ℓ	9,42	
L α		10,731 – 10,839		
L η		11,712		
L β		12,48 – 13,393		
L γ		15,248 – 15,709		

3.1.2 Auger Electrons

		Energy keV	Relative probability
Auger K			
KLL	57,49 – 63,42		100
KLX	70,03 – 77,11		57
KXY	82,53 – 90,52		7,8
Auger L	5,35 – 10,66		3040

4 Electron Emissions

		Energy keV	Electrons per 100 disint.
e _{AL}	(Bi)	5,35 - 10,66	25,2 (5)
e _{AK}	(Bi)		1,37 (16)
	KLL	57,49 - 63,42	}
	KLX	70,03 - 77,11	}
	KXY	82,53 - 90,52	}
ec _{1,0} K	(Bi)	24,657 (5)	3,66 (13)
ec _{1,0} L	(Bi)	98,80 - 101,76	0,64 (2)
ec _{1,0} M	(Bi)	111,18 - 115,03	0,20 (1)
ec _{2,0} K	(Bi)	148,106 (2)	33 (1)
ec _{3,1} K	(Bi)	209,56 (2)	1,27 (4)
ec _{2,0} L	(Bi)	222,24 - 225,21	5,7 (2)
ec _{2,0} M	(Bi)	234,63 - 238,47	1,7 (1)
ec _{3,1} L	(Bi)	283,70 - 286,67	0,22 (1)
ec _{3,1} M	(Bi)	296,09 - 299,93	0,07
$\beta_{0,3}^-$	max:	159 (2)	5,1 (2)
$\beta_{0,3}^-$	avg:	42,3 (6)	
$\beta_{0,2}^-$	max:	335 (2)	84,0 (14)
$\beta_{0,2}^-$	avg:	94,8 (7)	
$\beta_{0,0}^-$	max:	574 (2)	10,9 (14)
$\beta_{0,0}^-$	avg:	173,1 (7)	

5 Photon Emissions

5.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.
XL	(Bi)	9,42 — 15,709	14,5 (4)
XK α_2	(Bi)	74,8157	10,7 (3) } K α
XK α_1	(Bi)	77,1088	17,9 (5) }
XK β_3	(Bi)	86,835 }	
XK β_1	(Bi)	87,344 }	6,12 (20) K' β_1
XK β_5''	(Bi)	87,862 }	
XK β_2	(Bi)	89,91 }	
XK β_4	(Bi)	90,074 }	1,87 (7) K' β_2
XK $O_{2,3}$	(Bi)	90,421 }	

5.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{1,0}(\text{Bi})$	115,183 (5)	0,623 (22)
$\gamma_{2,1}(\text{Bi})$	123,45 (1)	0,096 (4)
$\gamma_{3,2}(\text{Bi})$	176,64 (1)	0,052 (4)
$\gamma_{2,0}(\text{Bi})$	238,632 (2)	43,6 (3)
$\gamma_{3,1}(\text{Bi})$	300,09 (1)	3,18 (13)
$\gamma_{3,0}(\text{Bi})$	415,27 (1)	0,144 (22)

6 Main Production Modes

Po – 210(t,p)Pb – 212

Po – 216 α decay

7 References

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