$^{210}_{83}\mathrm{Bi}_{127}$

1 Decay Scheme

Bi-210 mainly disintegrates by beta minus emission to the Po-210 ground state. Two weak alpha emissions to excited levels in Tl-206 have been pointed out.

Le bismuth 210 se désintègre principalement par émission bêta moins vers le niveau fondamental de polonium 210. Des transitions alpha de très faible intensité vers les niveaux excités de 304,8 keV et 265,7 keV de thalium 206 ont été mises en évidence.

2 Nuclear Data

$T_{1/2}(^{210}\mathrm{Bi})$	:	5,011	(5)	d
$T_{1/2}(^{210}\mathrm{Po})$	:	138,3763	(17)	d
$T_{1/2}(^{206}\mathrm{Tl})$	:	4,202	(11)	min
$Q^-(^{210}\mathrm{Bi})$	:	1161,2	(8)	keV
$Q^\alpha(^{210}\mathrm{Bi})$	:	5036,5	(8)	keV

2.1 α Transitions

	Energy (keV)	Probability (%)	F
$\alpha_{0,2}$	4740 (4)	0,000084 (9)	49
$\alpha_{0,1}$	4778 (4)	0,000056 (6)	58

2.2 β^- Transitions

	Energy (keV)	Probability (%)	Nature	lg ft
$\beta^-_{0,0}$	1161,2 (8)	99,99986 (2)	1st Forbidden non-unique	8

2.3 Gamma Transitions and Internal Conversion Coefficients

	Energy (keV)	$P_{\gamma+ce}$ (%)	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{1,0}$(Tl)	265,832 (5)	0,000056 (6)	E2	0,0855 (12)	0,0561 (8)	0,01440 (21)	0,1603 (23)
$\gamma_{2,0}$(Tl)	304,896 (6)	0,000084 (9)	M1	0,308 (5)	0,0519 (8)	0,01211 (17)	0,375 (6)

3 Atomic Data

3.1 Tl

ω_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	34,01
$K\beta_1$	82,577	
$K\beta''_5$	83,115	
$K\beta_2$	84,838	10,1
$K\beta_4$	85,134	
$KO_{2,3}$	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	5,2493 - 15,3183	

4 α Emissions

	Energy (keV)	Probability (%)
$\alpha_{0,2}$	4650 (4)	0,000084 (9)
$\alpha_{0,1}$	4687 (4)	0,000056 (6)

5 Electron Emissions

		Energy (keV)	Electrons (per 100 disint.)
e_{AL}	(Tl)	5,2493 - 15,3183	0,0000155 (6)
e_{AK}	(Tl)		
	KLL	54,587 - 59,954	0,00000085 (13)
	KLX	66,37 - 72,86	
	KXY	78,12 - 85,50	
$\beta^-_{0,0}$	max:	1161,2 (8)	99,99986 (2)
	avg:	317 (3)	

6 Photon Emissions

6.1 X-Ray Emissions

		Energy (keV)	Photons (per 100 disint.)	
XL	(Tl)	8,9531 - 14,7362	0,0000090 (5)	
XKα_2	(Tl)	70,8325	0,0000064 (7)	Kα
XKα_1	(Tl)	72,8725	0,0000108 (11)	
XKβ_3	(Tl)	82,118	0,0000037 (4)	K$'\beta_1$
XKβ_1	(Tl)	82,577		
XKβ''_5	(Tl)	83,115		
XKβ_2	(Tl)	84,838	0,00000110 (11)	K$'\beta_2$
XKβ_4	(Tl)	85,134		
XKO$_{2,3}$	(Tl)	85,444		

6.2 Gamma Emissions

	Energy (keV)	Photons (per 100 disint.)
$\gamma_{1,0}$(Tl)	265,832 (5)	0,000048 (5)
$\gamma_{2,0}$(Tl)	304,896 (6)	0,000061 (7)

7 Main Production Modes

{ Ra − 226 decay chain
{ Possible impurities: Bi − 214

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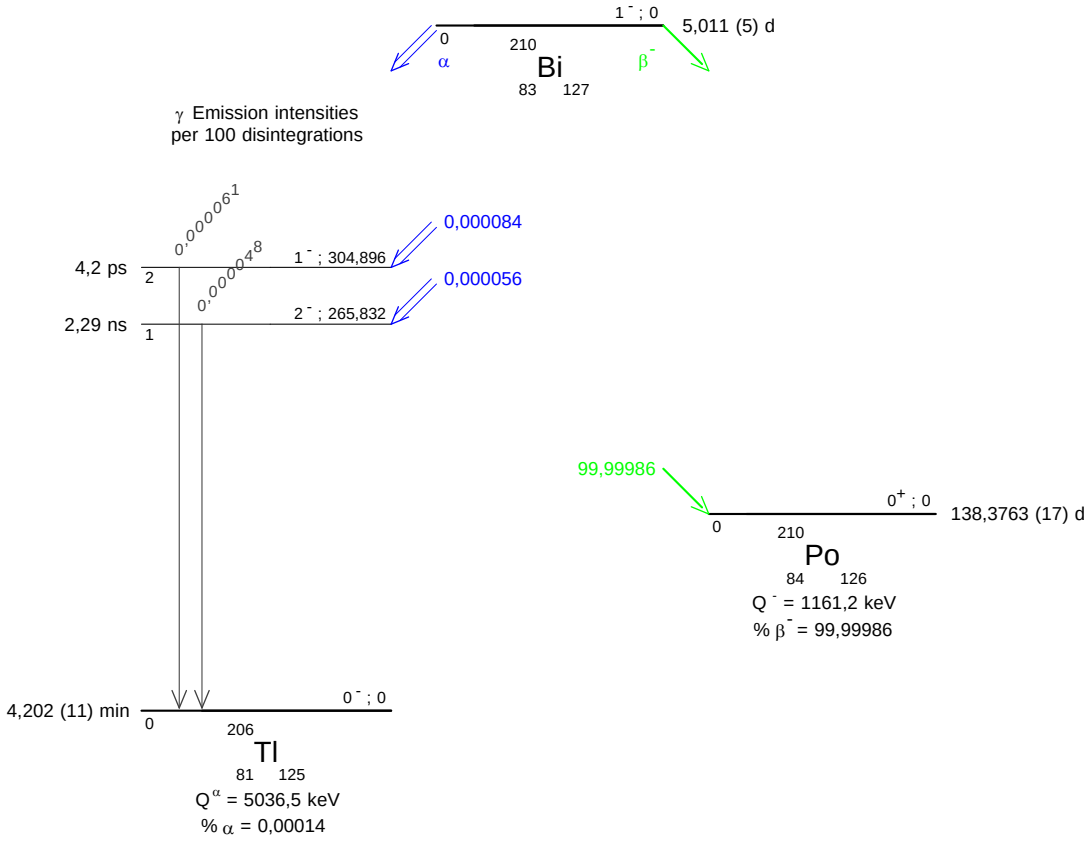
1 - ; 0
5,011 (5) d
0
210
Bi
83 127
α
β -
γ Emission intensities
per 100 disintegrations
0,000084
0,000056
4,2 ps
2,29 ns
2
1
1 - ; 304,896
2 - ; 265,832
99,99986
0+ ; 0
138,3763 (17) d
Po
84 126
Q - = 1161,2 keV
% β - = 99,99986
4,202 (11) min
0 - ; 0
206
Tl
81 125
Q α = 5036,5 keV
% α = 0,00014