$^{137}_{56}\mathrm{Ba}^{\,m}_{81}$

1 Decay Scheme

Ba-137m decays to the ground state by a 661 keV gamma transition.
Le Ba-137m se désexcite vers le niveau fondamental par une transition de 661 keV.

2 Nuclear Data

$T_{1/2}(^{137}\mathrm{Ba}^{\mathrm{m}})$: 2,552 (1) min

2.1 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce} \times 100$	Multipolarity	α_K	α_L	α_T
$\gamma_{1,0}$(Ba)	661,659 (3)	100	M4	0,0896 (15)	0,0167 (5)	0,1102 (19)

3 Atomic Data

3.1 Ba

ω_K : 0,900 (4)
$\bar{\omega}_L$: 0,110 (5)
n_{KL} : 0,888 (4)

3.1.1 X Radiations

		Energy keV		Relative probability
X_K				
	$K\alpha_2$	31,8174		54,28
	$K\alpha_1$	32,1939		100
	$K\beta_3$	36,3045	}	
	$K\beta_1$	36,3786	}	
	$K\beta_5''$	36,643	}	29,4
	$K\beta_5'$	36,666	}	
	$K\beta_2$	37,258	}	
	$K\beta_4$	37,312	}	7,4
	$KO_{2,3}$	37,426	}	
X_L				
	$L\ell$	3,954		
	$L\gamma$	– 5,973		

3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	25,31 – 26,79	100
KLX	30,09 – 31,36	47,7
KXY	34,84 – 37,41	5,7
Auger L	2,6 – 5,9	

4 Photon Emissions

4.1 X-Ray Emissions

		Energy keV		Photons per 100 disint.	
XL	(Ba)	3,954 — 5,973		0,95 (5)	
XKα_2	(Ba)	31,8174		2,06 (4)	} Kα
XKα_1	(Ba)	32,1939		3,80 (7)	}
XKβ_3	(Ba)	36,3045	}		
XKβ_1	(Ba)	36,3786	}	1,12 (2)	K$'\beta_1$
XKβ''_5	(Ba)	36,643	}		
XKβ'_5	(Ba)	36,666	}		
XKβ_2	(Ba)	37,258	}		
XKβ_4	(Ba)	37,312	}	0,28 (1)	K$'\beta_2$
XKO$_{2,3}$	(Ba)	37,426	}		

4.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{1,0}$(Ba)	661,657 (3)	90,07 (20)

5 Electron Emissions

		Energy keV		Electrons per 100 disint.
e_{AL}	(Ba)	2,6 - 5,9		7,7 (1)
e_{AK}	(Ba)			0,8 (1)
	KLL	25,31 - 26,79	}	
	KLX	30,09 - 31,36	}	
	KXY	34,84 - 37,41	}	
$ec_{1,0\ K}$	(Ba)	624,216 (3)		8,07 (5)
$ec_{1,0\ L}$	(Ba)	655,67 - 656,41		1,50 (3)
$ec_{1,0\ M}$	(Ba)	660,36 - 660,88		0,35 (1)

6 Main Production Modes

Separation from Cs-137–Ba-137m

7 References

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$^{137m}_{56}Ba_{81}$

γ Emission probabilities
per 100 disintegrations

Q^{IT} = 661,659 keV
% IT = 100