



1 Decay Scheme

Nb-93m disintegrates by 100 % gamma transition to the ground state of the stable nuclide Nb-93.
Le niobium 93m se désexcite à 100% par transition gamma vers le noyau stable de niobium 93.

2 Nuclear Data

$T_{1/2}(^{93}\text{Nb}^m)$: 16,12 (15) a

2.1 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	$P_{\gamma+ce}$ $\times 100$	Multipolarity	α_K (10^5)	α_L (10^5)	α_M (10^5)	α_T (10^5)
$\gamma_{1,0}(\text{Nb})$	30,77 (2)	100	M4	0,262 (8)	1,216 (40)	0,269 (8)	1,79 (5)

3 Atomic Data

3.1 Nb

ω_K : 0,751 (4)
 $\bar{\omega}_L$: 0,0347 (9)
 n_{KL} : 1,045 (4)

3.1.1 X Radiations

	Energy keV	Relative probability		
X _K	Kα ₂	16,5213	52,36	
	Kα ₁	16,6152	100	
	Kβ ₃	18,607	}	
	Kβ ₁	18,623	}	
	Kβ ₅ ^{''}	18,78	}	25,8
	Kβ ₂	18,952	}	
	Kβ ₄	18,982	}	3,86
	X _L			
L ℓ	1,90			
L γ	- 2,66			

3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	13,49 – 14,14	100
KLX	15,79 – 16,58	39,1
KXY	18,02 – 18,91	3,81
Auger L	1,4 – 2,6	

4 Electron Emissions

		Energy keV	Electrons per 100 disint.
e _{AL}	(Nb)	1,4 - 2,6	80,4 (30)
e _{AK}	(Nb)		3,64 (11)
	KLL	13,49 - 14,14	}
	KLX	15,79 - 16,58	}
	KXY	18,02 - 18,91	}
ec _{1,0 T}	(Nb)	11,78 - 30,74	99,999441 (16)
ec _{1,0 K}	(Nb)	11,78 (2)	14,6 (3)
ec _{1,0 L}	(Nb)	28,07 - 28,40	68 (3)
ec _{1,0 M}	(Nb)	30,30 - 30,56	15,0 (9)
ec _{1,0 N}	(Nb)	30,71 - 30,74	2,4 (1)

5 Photon Emissions

5.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.	
XL	(Nb)	1,90 — 2,66	2,89 (13)	
XK α_2	(Nb)	16,5213	3,16 (7)	} K α
XK α_1	(Nb)	16,6152	6,04 (12)	}
XK β_3	(Nb)	18,607	}	
XK β_1	(Nb)	18,623	}	K' β_1
XK β_5''	(Nb)	18,78	}	
XK β_2	(Nb)	18,952	}	
XK β_4	(Nb)	18,982	}	K' β_2

5.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{1,0}(\text{Nb})$	30,77 (2)	0,000559 (16)

6 Main Production Modes

- { Nb – 93(n,n')Nb – 93m
Possible impurities : Nb – 92m, Nb – 94, Nb – 95
- { Mo – 92(n,γ)Mo – 93
Possible impurities : none
- { Separation from Zr – 93 + Nb – 93m (Fission product)
Possible impurities : Nb – 94

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γ Emission probabilities
per 100 disintegrations

