



1 Decay Scheme

Y-90m disintegrates 99.9981 (2) % through isomeric transitions to the Y-90 ground state and 0.0019(2) % by beta minus emission to the 2318 keV excited state in Zr-90 .

L'yttrium 90 metastable se désexcite pour 99,9981 (2) % vers le niveau fondamental de l'yttrium 90 et se désintègre pour 0,0019 (2) % par émission bêta moins vers le niveau excité de 2318 keV du zirconium 90.

2 Nuclear Data

$T_{1/2}(^{90}\text{Y}^m)$:	3,19	(6)	h
$T_{1/2}(^{90}\text{Y})$:	2,6684	(13)	d
$Q^-(^{90}\text{Y}^m)$:	2961,8	(17)	keV

2.1 β^- Transitions

	Energy keV	Probability $\times 100$	Nature	lg ft
$\beta_{0,1}^-$	642,9 (17)	0,0019 (2)	Unique 1st Forbidden	9,6

2.2 Gamma Transitions and Internal Conversion Coefficients

	Energy keV	P $_{\gamma+ce}$ $\times 100$	Multipolarity	α_K	α_L	α_M	α_T
$\gamma_{1,0}(\text{Y})$	202,53 (3)	99,7 (17)	M1+E2	0,0240 (7)	0,00272 (8)	0,000465 (14)	0,0272 (8)
$\gamma_{2,1}(\text{Y})$	479,51 (7)	99,671 (23)	M4(+E5)	0,0818 (25)	0,01157 (35)	0,00202 (6)	0,0957 (29)
$\gamma_{2,0}(\text{Y})$	682,04 (6)	0,329 (23)	E5	0,0190 (6)	0,00292 (9)	0,000507 (15)	0,0225 (7)
$\gamma_{1,0}(\text{Zr})$	2318,99 (2)	0,0019 (2)	E5	0,000408 (12)	0,0000463 (14)	0,00000804 (24)	0,000463 (14)

3 Atomic Data

3.1 Y

ω_K	:	0,716	(4)
$\bar{\omega}_L$:	0,0289	(7)
n_{KL}	:	1,081	(4)

3.1.1 X Radiations

	Energy keV	Relative probability
X_K		
$K\alpha_2$	14,883	52,15
$K\alpha_1$	14,9581	100
$K\beta_3$	16,7268	}
$K\beta_1$	16,7384	}
$K\beta_5''$	16,8792	}
$K\beta_5'$	16,8814	}
$K\beta_2$	17,0137	}
$K\beta_4$	17,0409	}
		25,11
		3,47

3.1.2 Auger Electrons

	Energy keV	Relative probability
Auger K		
KLL	12,205 – 12,784	100
KLX	14,238 – 14,956	37,6
KXY	16,251 – 17,034	3,53
Auger L	1,2 – 2,3	

4 Electron Emissions

		Energy keV	Electrons per 100 disint.
e _{AL}	(Y)	1,2 - 2,3	11,56 (10)
e _{AK}	(Y)		2,78 (8)
	KLL	12,205 - 12,784	}
	KLX	14,238 - 14,956	}
	KXY	16,251 - 17,034	}
ec _{2,1} K	(Y)	462,47 (7)	7,45 (23)
ec _{2,1} L	(Y)	477,14 - 477,43	1,057 (32)
ec _{2,1} M	(Y)	479,12 - 479,35	0,185 (5)
$\beta_{0,1}^-$	max:	642,9 (17)	0,0019 (2)
$\beta_{0,1}^-$	avg:	231,9 (7)	

5 Photon Emissions

5.1 X-Ray Emissions

		Energy keV	Photons per 100 disint.	
XL	(Y)	1,6865 — 2,3482	0,343 (8)	
XK α_2	(Y)	14,883	2,02 (6)	} K α
XK α_1	(Y)	14,9581	3,88 (10)	}
XK β_3	(Y)	16,7268	}	
XK β_1	(Y)	16,7384	}	K' β_1
XK β_5''	(Y)	16,8792	}	
XK β_5'	(Y)	16,8814	}	
XK β_2	(Y)	17,0137	}	
XK β_4	(Y)	17,0409	}	K' β_2

5.2 Gamma Emissions

	Energy keV	Photons per 100 disint.
$\gamma_{1,0}$ (Y)	202,53 (3)	97,1 (14)
$\gamma_{2,1}$ (Y)	479,51 (7)	90,97 (24)

	Energy keV	Photons per 100 disint.
$\gamma_{2,0}(Y)$	682,04 (6)	0,322 (22)
$\gamma_{1,0}(Zr)$	2318,958 (20)	0,0019 (2)

6 Main Production Modes

Y – 89(d,p)Y – 90m

Rb – 87(α ,n)Y – 90m

7 References

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γ Emission probabilities
per 100 disintegrations



